Dixie Transit Feasibility Study

Final Report

May, 1999

Prepared For:

UDOT

Five County Association of Governments

DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA

Prepared By:

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Dixie Area Transit Feasibility Study
Executive Summary

In September, 1998, Fehr & Peers was selected along with assistance from Leigh, Scott, and Cleary (LSC) and Post, Buckley, Schuh & Jernigan (PBS&J) to perform a feasibility study for operating mass transit in the Dixie area of southern Utah. The study was funded cooperatively by the Utah Department of Transportation, the Five County Association of Governments, and the participating cities of St. George, Washington, Hurricane, Ivins, Santa Clara, Leeds, LaVerkin, Toquerville and Washington County. While not the first transit analysis completed for the area, this study was unique in that it was performed on the eve of the area's designation as an Urbanized Area and the formation of a Metropolitan Planning Organization which would provide transportation planning for the region beginning after the year 2000.

Three specific areas were identified in the study including the need for transit, the existing and future resources necessary to provide transit service, and finally the institutional and agency related issues involved in the formation and operation of a transit district. The need for transit was assessed through a combination of community input and statistical data regarding mobility limited persons, and other transit target groups such as the elderly, low income, and low automobile ownership individuals and households.

Many of the unique aspects of the Dixie Area point to a strong need for transit. These aspects include its high growth rate such that traffic congestion is becoming a visible problem and the region's attraction as a retirement haven and accompanying high elderly population with associated continuing care needs and facilities. Preliminary estimates performed in the study show that the demand for transit is currently approaching 500,000 annual transit trips per year (discussed in Chapter 4). As such, transit could provide the opportunity for many residents to become or remain employed and active in the community. At the same time, transit ridership will only be a very small fraction of total trip making in the region and it must be recognized as only a small part of the overall strategy for traffic congestion relief. While there appears to be very strong support for public transit, it is not clear whether the majority of residents would be willing to support public transit through local taxes.

There are a number of special care facilities which provide transit throughout the area. As part of the study, 24 surveys were distributed and returned by transit providers. The majority of these transit providers include community care facilities for which transportation service is a part of their overall mission. Of the 24 agencies contacted, 16 provide transit service. This service is generally not coordinated in the sense that different agencies may provide redundant service over similar routes and many agencies struggle to provide drivers, vehicles, vehicle maintenance, and related functions at a small scale. While it is difficult to assess the cost savings which could be associated with the coordination of these transit services, it is clear that as the area continues to grow it will become increasingly more cost effective and beneficial to coordinate para-transit service and to offer transit service to the population at large.

Various service alternatives were considered for the Dixie Area which range from more coordinated para transit service to more traditionally recognized buses operating on fixed service routes and schedules. The most extensive service which could provide the most convenient service and attract the most riders by reaching many geographic areas and operating at relatively frequent schedules is likely beyond the initial financial means of the area. Projected transit ridership in the region is expected to be comprised of "transit captive" groups as opposed to large amounts of "choice" riders so it appears most cost effective to phase in higher levels of transit service as demand dictates. Initial service could be comprised of pooled transit resources providing demand responsive service between cities and checkpoint service to key concentrated destinations in St.George City. Checkpoint service allows buses to deviate from a fixed route and provide demand responsive service while also offering the certainty of arriving at specified locations at a specified time. It appears that demand may exceed the capacity of checkpoint service after 3 or 4 years of operation when a more rigid service route should be employed.

Finally, the designation of the Dixie Area as an Urbanized Area will open several funding opportunities not presently available. The projected operating costs of below $500,000 annually and growing to almost $700,000 annually (with Service Routes) will most likely be carried by a combination of federal transit assistance, limited fare box revenue, and most likely some level of local taxpayer support. Capital costs associated with the purchase of vehicles and maintenance facilities will require greater subsidies. State enabling legislation allows the formation of a transit district which would allow voter approval within each participating jurisdiction and ongoing representation of each jurisdiction in the transit operating board. In order to minimize confusion and extra layers of government, it is recommended that the formation of a transit district begin in the Urbanized boundaries to be established by the year 2000 Census and that early coordination of the transit district should be developed in conjunction with the formation of a Metropolitan Planning Organization for the region.

Dixie Transit Study

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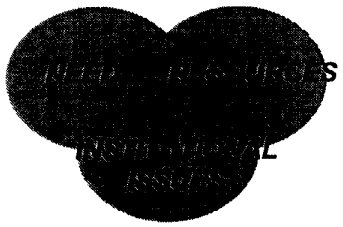
1. Project Background

In September, 1998 the consultant team of Fehr & Peers Associates; Leigh, Scott and Cleary (LSC); and Post, Buckley, Schuh & Jernigan (PBS&J) was hired to determine the feasibility of implementing a public transit system for St. George and the surrounding area. The area referred to as 'Dixie' is a subset of Washington County encompassing St. George City and the surrounding cities likely to be designated in the future Metropolitan Planning Organization (MPO). The study area is further discussed in Chapter 2. The MPO designation is discussed in Chapter 6. The study is sponsored by the Five County Association of Governments, Washington County, several municipalities including St. George, Santa Clara, Ivins, Washington, Leeds, Hurricane, LaVerkin and Toquerville, and the Utah Department of Transportation.

The goal of the transit feasibility study is to provide transit service alternatives and recommendations for the Dixie area. In this study, transit refers to a system of buses and /or vans to provide transportation service to residents in the study area. The focus of the study will be tri-fold; to establish need for transit, to determine possible transit providers, and to work with institutional issues to allow public transportation to be efficiently provided.



While formal transit goals should be established with greater community support and the possible formation of a transit district, general goals were identified throughout the conduct of the study and were used to guide various analysis and recommendations of transit service in the region. The following transit related goals were identified:

- Future transit service should attempt to minimize the cost associated with existing, fragmented service associated with independent agencies providing transit for individual groups.

- Transit service should be provided between cities in the region and targeted to jobs, education, recreation, shopping, and health facilities.

- Transit service should be responsive to the needs of the cities and the individuals and based on each entities individual support.

- Transit service formation should maximize federal transit funding and other outside funding assistance.

- Transit service should be reasonably reliable such that it can help enhance the image of the region for attracting retired persons and the full diversity of individual needs.

- Transit service should strive to assist with mitigating traffic congestion and improving the overall quality of life.

- Transit service should maximize the opportunity for senior citizens persons with disabilities to be employed and active in the community.

Throughout the study, a Technical Steering Committee was assembled with representation from many of the participating funding jurisdictions as well as from several additional agencies and individuals with involvement in transit issues. A list of the Steering Committee members and a schedule of transit feasibility related meetings of this group is included in the appendix to this report. A first Technical Memorandum was completed in December, 1998, and distributed to the Steering Committee. This first report focused on quantifying transit need based primarily on demographic characteristics and preliminary user survey information. In addition, this report also identified major institutional issues which would be addressed in greater detail throughout the study.

This report represents the second Technical Memorandum which incorporates all of the information included in the first Technical Memorandum as well as more detailed transit resource information, service options, and institutional recommendations which must be addressed to best provide transit service in the Dixie Area. As such, this second Memorandum serves as a draft Final Report which must be reviewed by the Steering Committee and updated based on further comments of this technical group as well as many of the elected leaders of the area who will be briefed on the draft recommendations to date.

2. Study Area

A. WASHINGTON COUNTY

Washington County is located in the Southwestern corner of Utah, approximately 300 miles from Salt Lake City and 120 miles from Las Vegas, Nevada. The county is characterized by high desert and mountainous terrain, with a moderate climate that provides refuge from the colder climates of most of Utah.

Washington County is known for its abundant recreation opportunities and natural resources, including Zion National Park, Snow Canyon State Park, and several golf courses. The St. George marathon is a national event that draws thousands of visitors each year.

The population of the county is approximately 72,900 (1996), a 66 % increase from the 1990 census population estimate of 48,560. It is the fastest growing county in Utah and one of the fastest growing counties in the U.S. The population growth experienced by the region is largely due to the high elderly and retirement population as well as the growing service economy originally supported by this population and visitor group.

B. CITIES AND TOWNS

There are 14 established municipalities that serve as population centers, with St. George and the surrounding suburbs accounting for well over half of the county population. Although not all of the areas are included in the study, municipalities within the County are listed below.

Enterprise	Leeds	Springdale
Hilldale	New Harmony	Toquerville
Hurricane	Rockville	Virgin
Ivins	St. George	Washington
LaVerkin	Santa Clara	

Of the 14 municipalities in the County, the transit feasibility study is targeted to, and partially funded by, the City of St. George and six other local governments surrounding it. Each of these cities have contributed to the overall funding of the project. Demographic breakdowns of each city are shown in Tables 2, 3 and 4. Population segments were taken from the 1990 Bureau of the Census. 1996 population characteristics were calculated based on the Governor's Office of Planning and Budget (GOPB) population estimates. Based on GOPB growth projections for 2020, segments of the population were calculated for 2020. It is important to note that most cities in Washington County expect to grow faster than GOPB forecasts. While GOPB forecasts have proven to be reasonably reliable over time, they are based largely on economic (job) growth and cohort survival patterns and do not typically consider recreational, tourism, or retirement patterns which explain much of the historic growth of the Dixie Area. General

descriptions of each participating community are below. Population segments and projections are shown in Tables 2,3 and 4.

St. George

The City of St. George is 65 square miles with a population of approximately 45,000 residents. The population increase in Washington County is due largely to the growth of St. George and its neighboring suburbs. It is located in the central south portion of the county and serves as the hub of development and services for outlying towns. St. George is also the major employment center for the county, with major industries such as a college (Dixie College), renowned health care facilities, and a healthy tourist economy. The city's low elevation, warm temperatures, and strong economy draw people from California, Nevada, Arizona and other parts of Utah, spurring development. The city is also known for its many retirement homes that offer a high quality of life. In 1995, St. George City worked in cooperation with its neighboring cities of Ivins, Santa Clara, Washington and Hurricane and completed a Traffic and Transportation Master Study that cited traffic congestion as a problem, brought on by changes in land use and rapid growth.

Hurricane

Hurricane is located approximately 20 miles northeast of St. George, 25 miles from Zion National Park, and approximately 20 miles from the border of Arizona. Hurricane is en route to major recreation attractions, including Zion National Park and Lake Powell. An increase in tourism in Southern Utah has noticeably increased traffic on local roads. The population of Hurricane is 5,820 (1996) and is projected to grow to approximately 15,000 by the year 2020.

Ivins

The Town of Ivins is approximately 10 miles northwest of the city of St. George. At the base of Snow Canyon State Park, the area offers abundant recreation opportunity. The city is growing rapidly and new development brings a large retirement population. The current population (1996) is 3,150 and is projected to grow to approximately 8,500 by the year 2020.

LaVerkin

The City of LaVerkin is located roughly 25 miles from St. George, Zion National Park and the Arizona border. Population in 1990 was 1,771. In 1996 the population grew to 2684, a 56% increase. In 2020 the population is expected to reach 6,480. LaVerkin is adjacent to the town of Hurricane.

Leeds

Leeds Town is located approximately 30 miles northeast of St. George, north of Toquerville and LaVerkin. The current population is 263 (1996) and will grow to approximately 560 residents in 2020.

Santa Clara

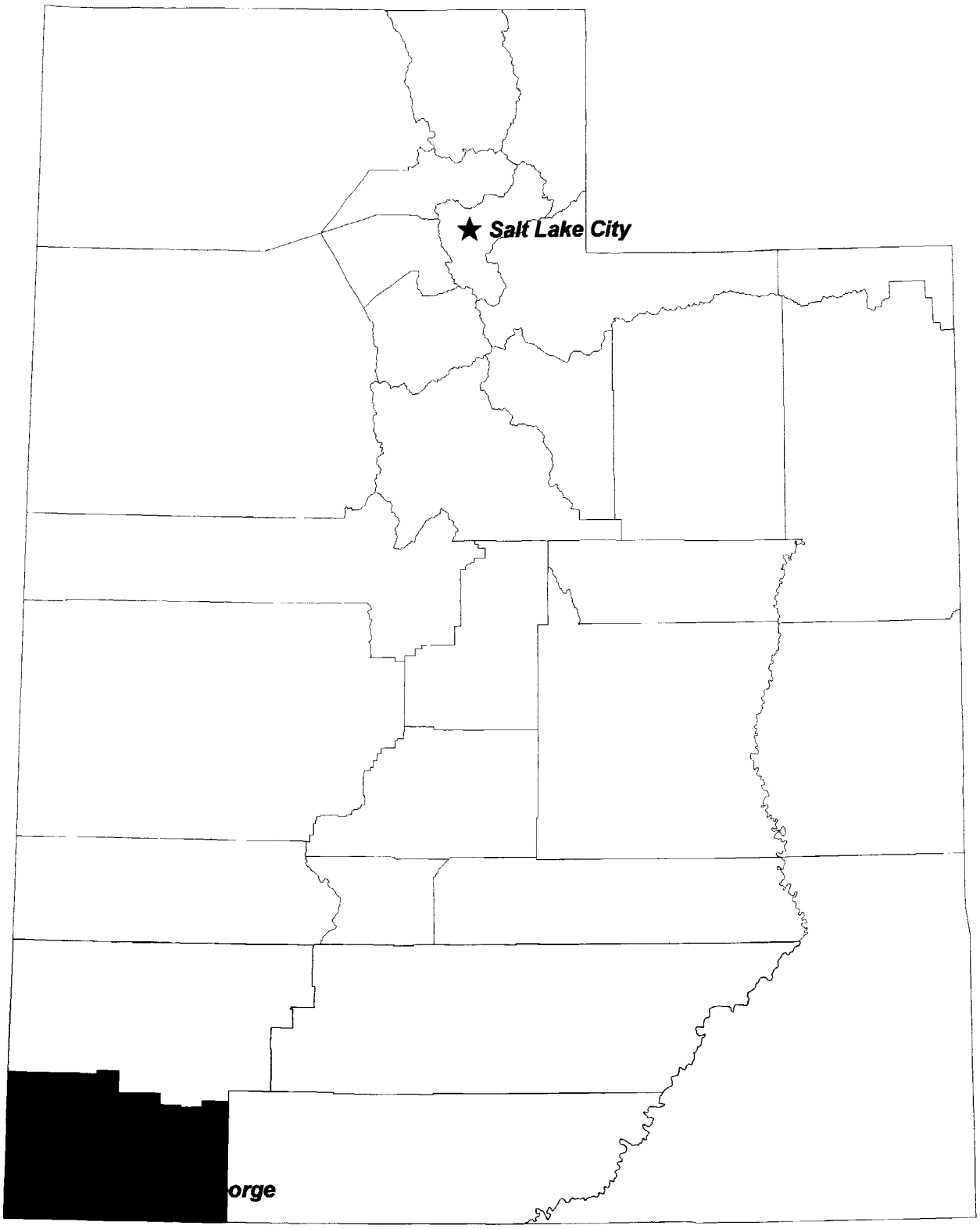
Santa Clara lies just northwest of St. George. The city is accessed primarily by Sunset Drive from St. George. Growth in Santa Clara is creating a development strip between Ivins and St. George. The population of Santa Clara is currently 3,857 (1996) and will grow to approximately 9,000 in the year 2020.

Toquerville

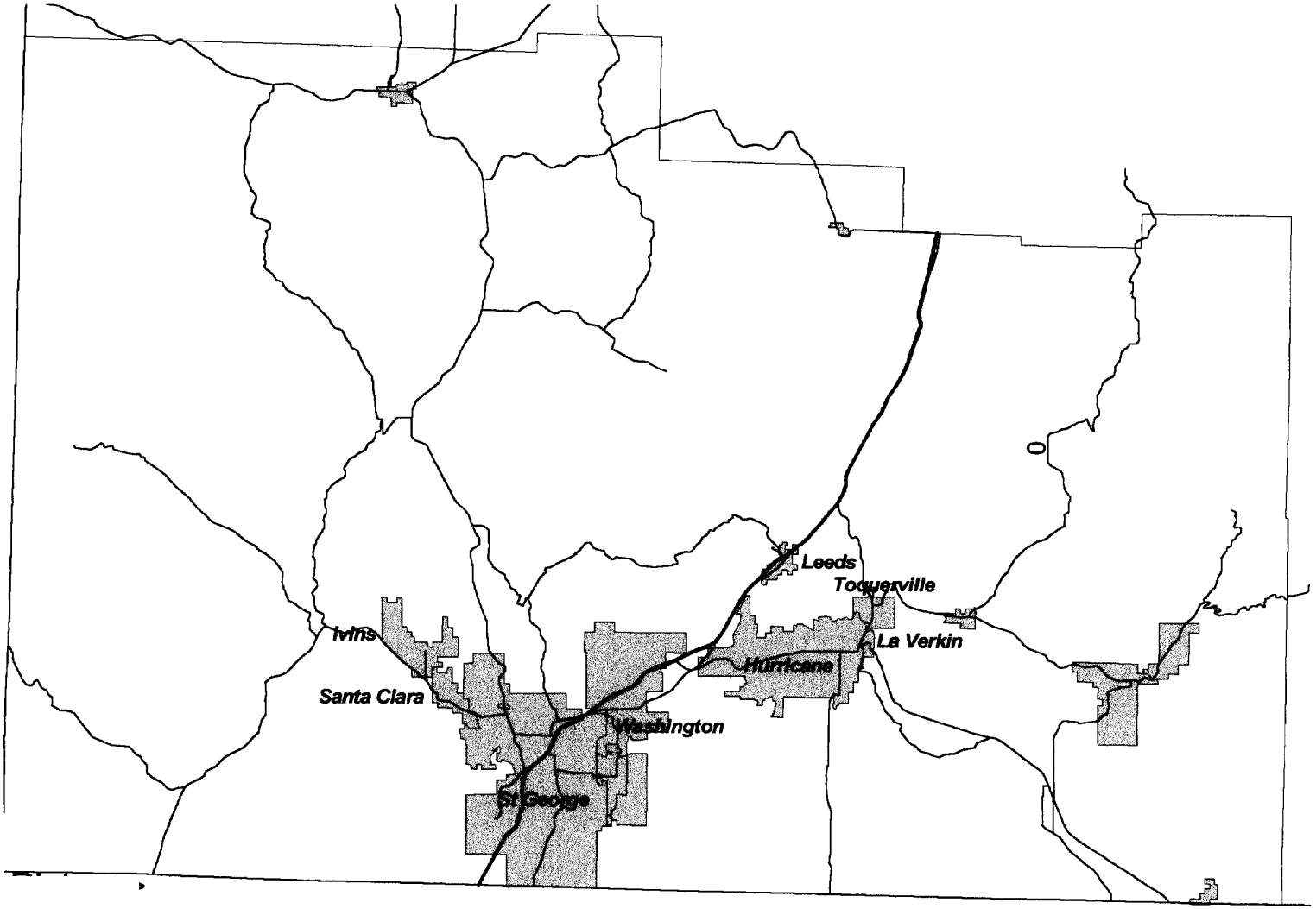
The Town of Toquerville is located approximately 25 miles northeast of St. George, north between Leeds and LaVerkin. The current population is 724 (1996) and will grow to approximately 1,830 residents in 2020.

Washington

Washington City is located adjacent to St. George, northeast of the city. The majority of the city lies south of Interstate 15, however it is bisected by the freeway. It is the second largest city in the study area, with a population of 6,121 (1996) and is projected to grow to a population of 16,230 by 2020. As with Santa Clara, growth is creating a corridor of development between Washington and St. George.



Fehr & Peers Associates, Inc. Transportation Consultants	Dixie Area Transit Feasibility Study Location of Study Area in Utah	Figure 1



Fehr & Peers Associates, Inc. Transportation Consultants	Dixie Area Transit Feasibility Study Study Area Cities and Towns	Figure 2

3. Transportation System

Washington County and the St. George area is served by a network of state and local roads. In 1995 a Traffic and Transportation Master Study was completed by the City of St. George which covers the city and surrounding areas of Ivins, Santa Clara, and Washington Cities. This captured many of the problems faced by the growing city and its suburbs. Although St. George was the focus of this study, the issues discussed address concerns throughout the suburban area. Issues identified include:

- Internal circulation
  Access between neighborhoods, existing roadways, the lack of a completed roadway network, and single point access to urban areas.

- Regional access
  There are a limited number of roadways connecting downtown St. George with outlying areas and communities.

- I-15 and river crossings
  Crossings are prone to congestion, as they are the only means of crossing natural barriers.

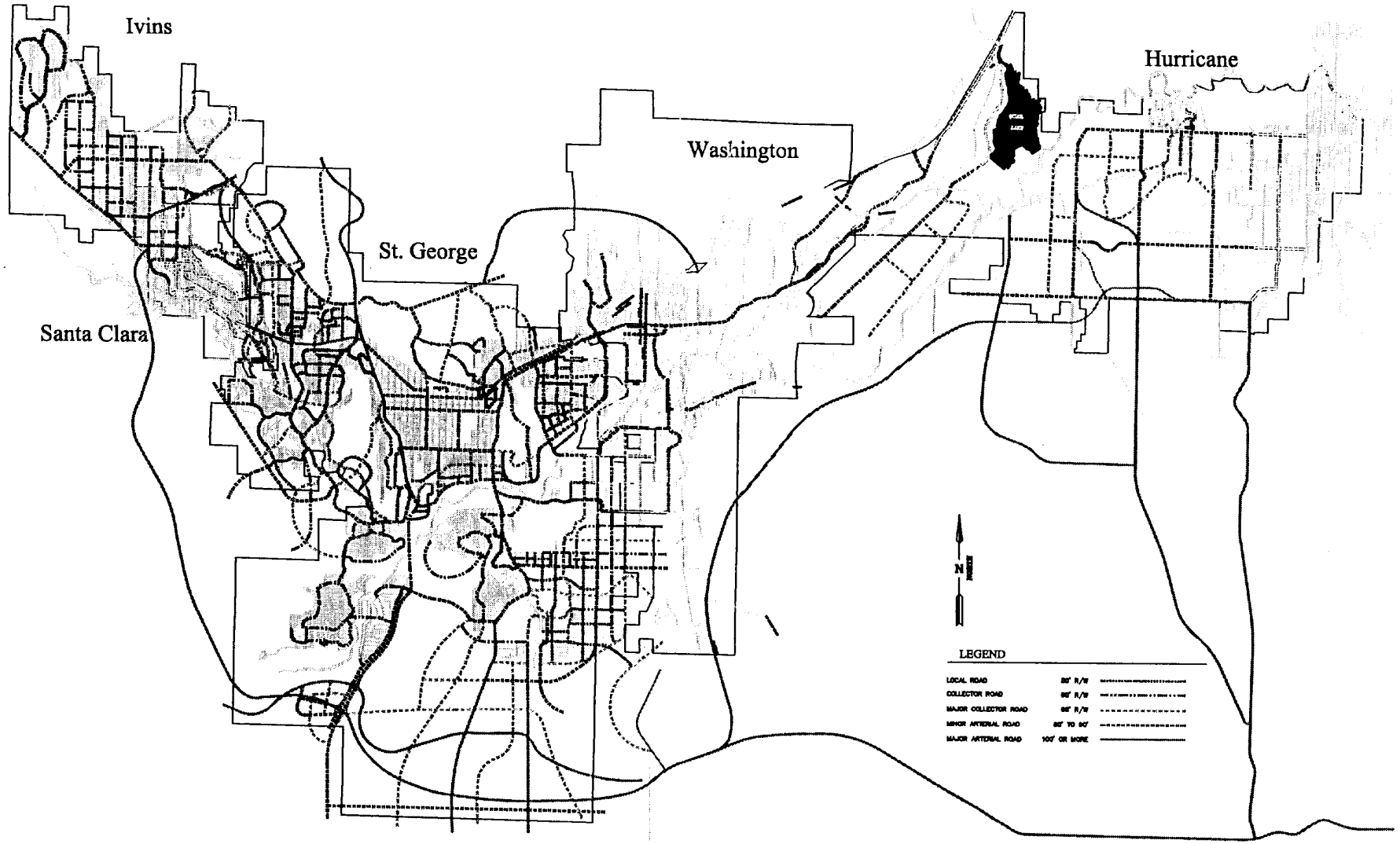
- Population growth of the area
  The growth of the area will inevitably put strain on the existing transportation system.

- Constraints of the existing roadway network
  Constraints of the existing roadway network and growth issues will present a planning challenge to local municipalities attempting to meet changing demands.

With issues of congestion at the forefront of discussion for St. George and the surrounding area, a transit feasibility study will begin to address the impact transit may have on reducing congestion and improving the road system. Figure 3 shows the planned road network in St. George and its surrounding areas as included in the Traffic and Transportation Master Study.

Figure 3

Combined Roadway Master Plan



Ivins, Santa Clara, St. George, Washington, and Hurricane

4. Establishing Ridership Demand

A. Demographic Analysis

In order to understand the composition of the study area, and to establish the need for transit, demographic data, based on the 1990 and 1996 data, was analyzed for population patterns. Five major categories of population were studied, corresponding to the segments of population most affected by transit. They include:

- Total population
  Recent population increases and future projections, as discussed in Chapter 2, show a significant increase in the total population of the cities within the study area. The discussion of the Traffic and Transportation study completed by the City of St. George points to an increase in roadway congestion as result of this growth.

- Age 65 and over
  The provision of transit to the elderly population will ensure that people in need will have adequate transportation services to necessary services, such as doctor appointments and shopping. It will also provide the necessary mobility to keep the elderly involved in the community. Transit may also facilitate employment for this population.

- Mobility limited
  As with the elderly population, the mobility impaired, such as those with physical or mental disabilities, need transportation to services, a means to stay involved in the community, and the opportunity to be employed.

- Population living under the poverty level
  People who cannot afford private vehicles, or who spend a disproportional amount of their income on (poor operating) automobiles, could be given the same opportunities for transportation service, community involvement and employment with transit. This group could benefit by the cost savings typically associated with transit trips as compared to automobile trips.

- People who have no vehicle
  As with those who can not afford a vehicle, people who either choose not to have a vehicle or cannot drive would benefit from transit with increased mobility to the community, services, and employment.

It is important to note the overlap between these categories. For example, a person who is 67 years old may be mobility limited and living under the poverty level with no vehicle. Further, this person is a part of the general population. As demand is established, 'double counting' of these categories will be recognized and accounted for.

Data was collected for both the county block groups, showing larger county patterns, as well as for specific (Census designated) places, showing a more detailed population break-down for each individual city.

The U.S. Census Bureau, for purposes of data collection, have divided each county into tracts, block groups and blocks. Most data collected from the Census Bureau is based on a (theoretical) 100 percent sample of households, although some information is based on limited sample data and then applied to the larger population. This study presents block group data which is primarily derived from the 100 percent sample. Table 1 shows population statistics for each block group. The corresponding location is shown in Figure 4. A graphic representation of each major population segment is shown in figures 5 through 9.

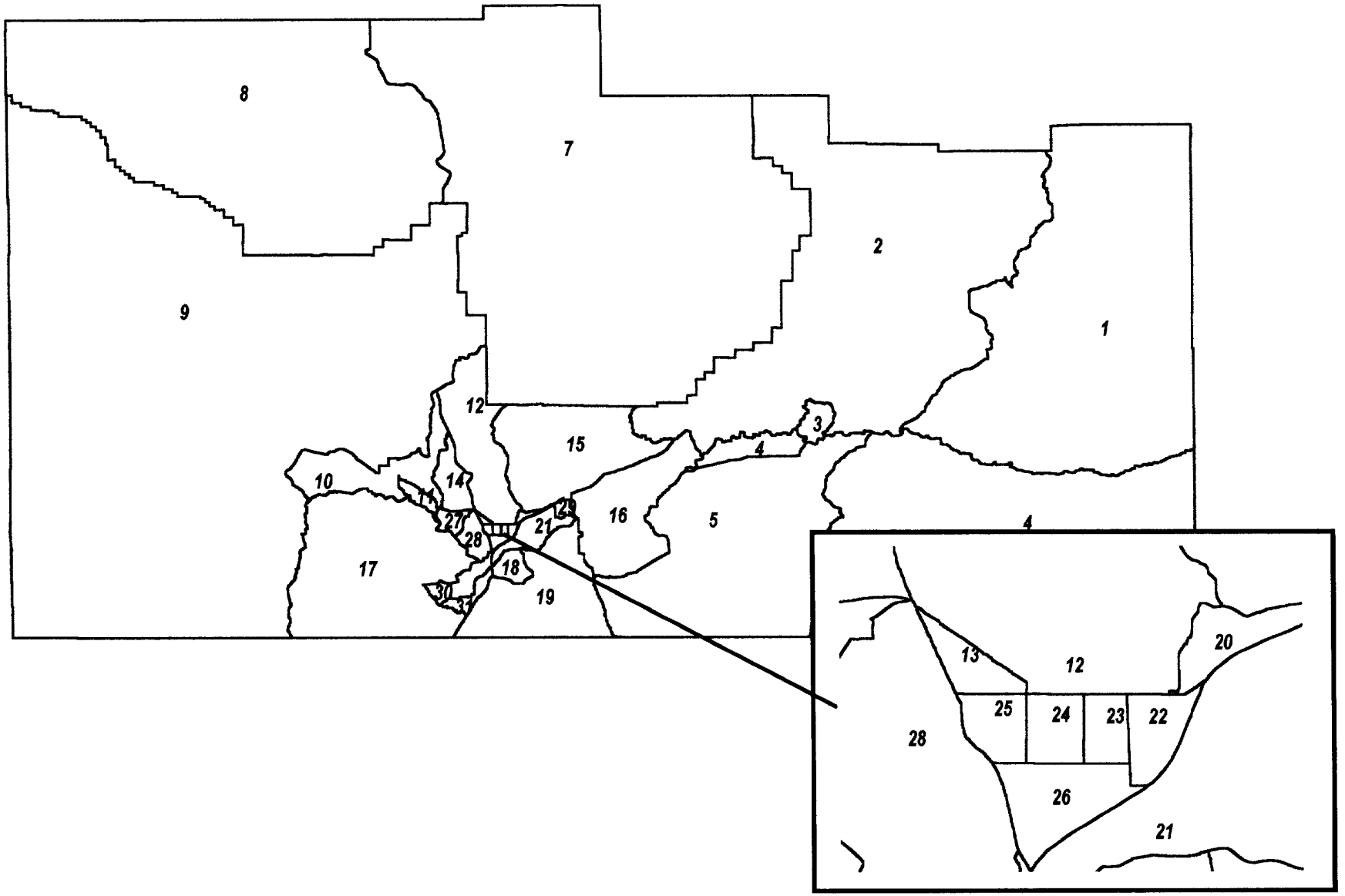
Separate from tracts, block groups and blocks, census data is also divided by *place*. Places are aggregates of blocks and are established municipalities or non-incorporated areas designated by the county. This study uses places for a more detailed view of particular cities, and a finer analysis of the location of demographic groups. The 1990 and 1996 population data was obtained from the U.S. Bureau of the Census. Projections for 2020 population for each city were obtained from the Governor's Office of Planning and Budget. For the year 1990, the Census Bureau has made available a complete demographic break-down of the population (as shown in Table 1). For this year, the percentage of each population segment of the total population was calculated. As previously mentioned, there is some overlap between each category.

For the year 1996, the percentages were applied to the Census Data population numbers to obtain the break-down of population categories. Similarly, for the year 2020, the percentages were applied to the population projections by the Governor's office of planning and budget to obtain a break-down of population segments. Tables 2 through 4 show this analysis.

Table 1
Demographics by Block Group
(Corresponding locations are shown in Figure 3)

Map Reference	Tract Number	Census Block Group	Total Population	Total Elderly Population Age 65+	Mobility Limited Population	Total Population Below Poverty	Households with No Vehicle
1	9851	1	574	141	6	78	4
2	9851	2	1,361	280	24	238	21
3	9851	3	1,743	285	17	290	17
4	9852	1	1,452	52	4	474	13
5	9852	2	2,310	396	20	433	20
6	9852	3	1,665	299	34	191	28
7	9853	1	63	15	0	7	0
8	9853	2	1,110	102	19	178	13
9	9854	1	1,269	147	3	128	19
10	9854	2	1,359	155	11	230	2
11	9854	3	2,252	238	28	105	9
12	9855	1	1,716	304	27	180	0
13	9855	2	1,369	267	9	168	29
14	9855	3	3,934	691	24	340	27
15	9856	1	1,495	152	31	158	3
16	9856	2	1,822	265	32	157	0
17	9856	3	1,114	233	25	122	11
18	9857	1	2,999	386	48	131	9
19	9857	2	448	87	0	52	0

Map Reference	Tract Number	Census Block Group	Total Population	Total Elderly Population Age 65+	Mobility Limited Population	Total Population Below Poverty	Households with No Vehicle
20	9858	1	402	85	22	41	10
21	9858	2	2,867	436	57	270	12
22	9858	3	1,625	163	19	801	35
23	9859	1	1,109	178	29	156	19
24	9859	2	1,206	406	24	193	79
25	9859	3	1,546	387	70	371	83
26	9859	4	2,575	700	49	108	82
27	9860	1	1,875	159	14	259	8
28	9860	2	1,871	259	52	282	35
29	9860	3	309	33	4	53	0
30	9860	4	2,185	532	33	146	0
31	9860	5	935	92	0	50	0
	TOTALS		48,560	7,925	735	6,390	588

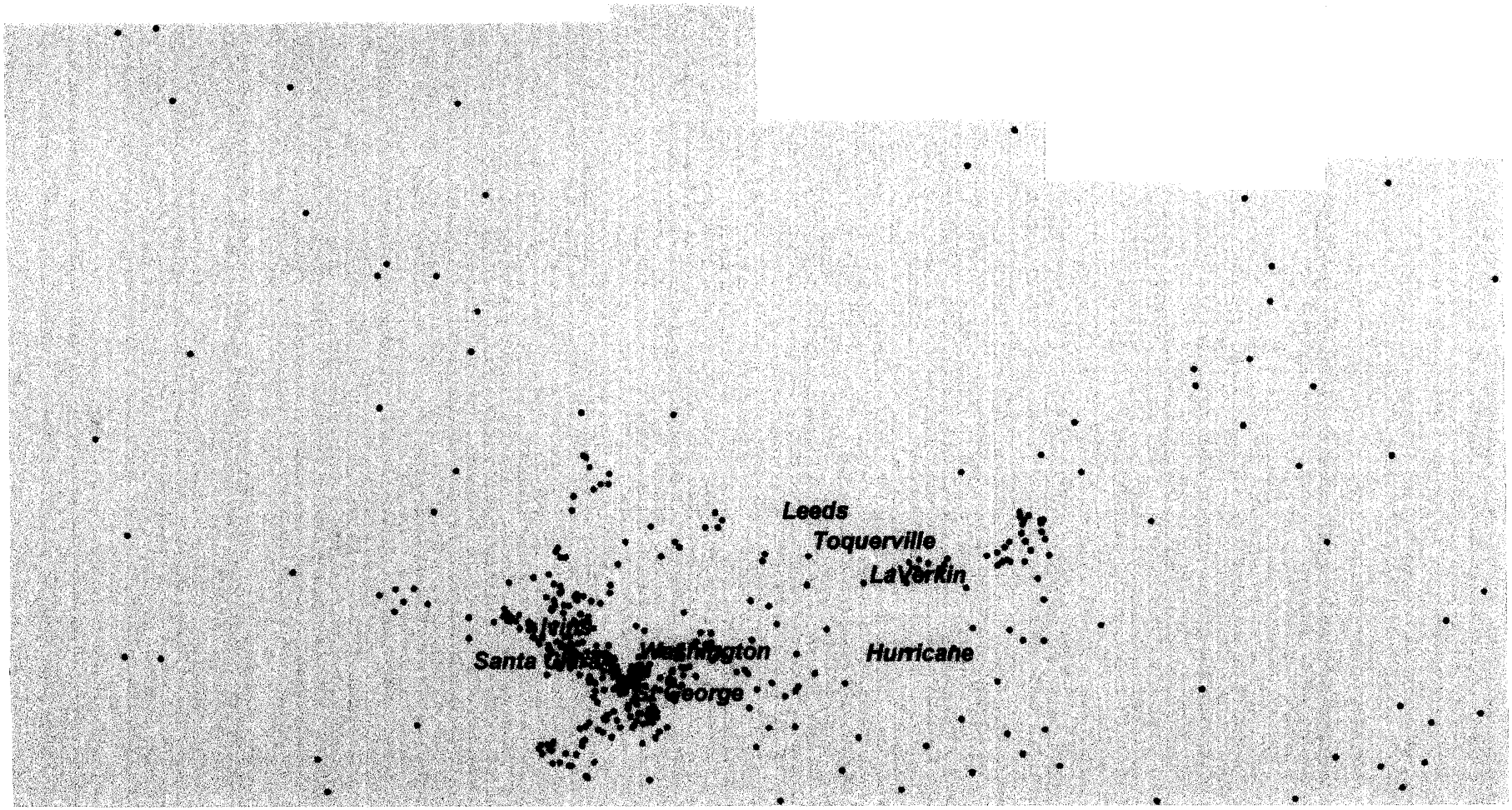


Fehr & Peers Associates, Inc.
Transportation Consultants

Dixie Area Transit Feasibility Study
Block Group Location Reference

Figure 4

Distribution of Population by Block Group
1 dot = 100



Fehr & Peers Associates, Inc. Transportation Consultants	Dixie Area Transit Feasibility Study Population Distribution by Block Group	Figure 5

Figure 6
Population Distribution of Age 65+ Washington County by Block Group
1 dot = 10

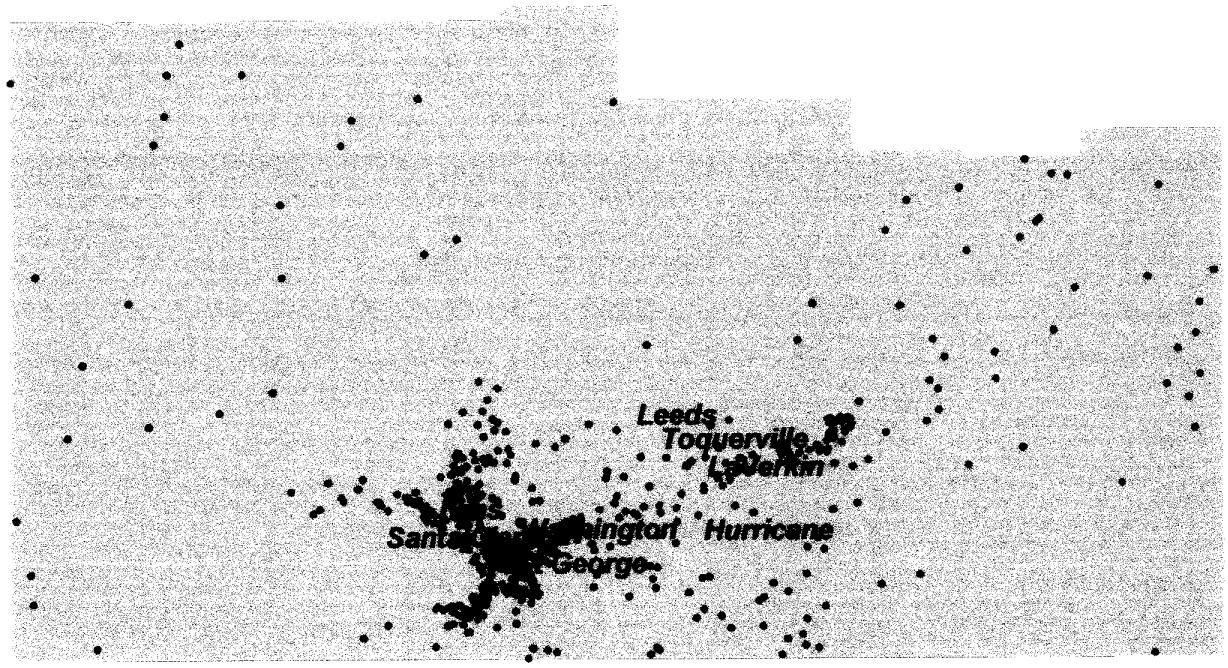
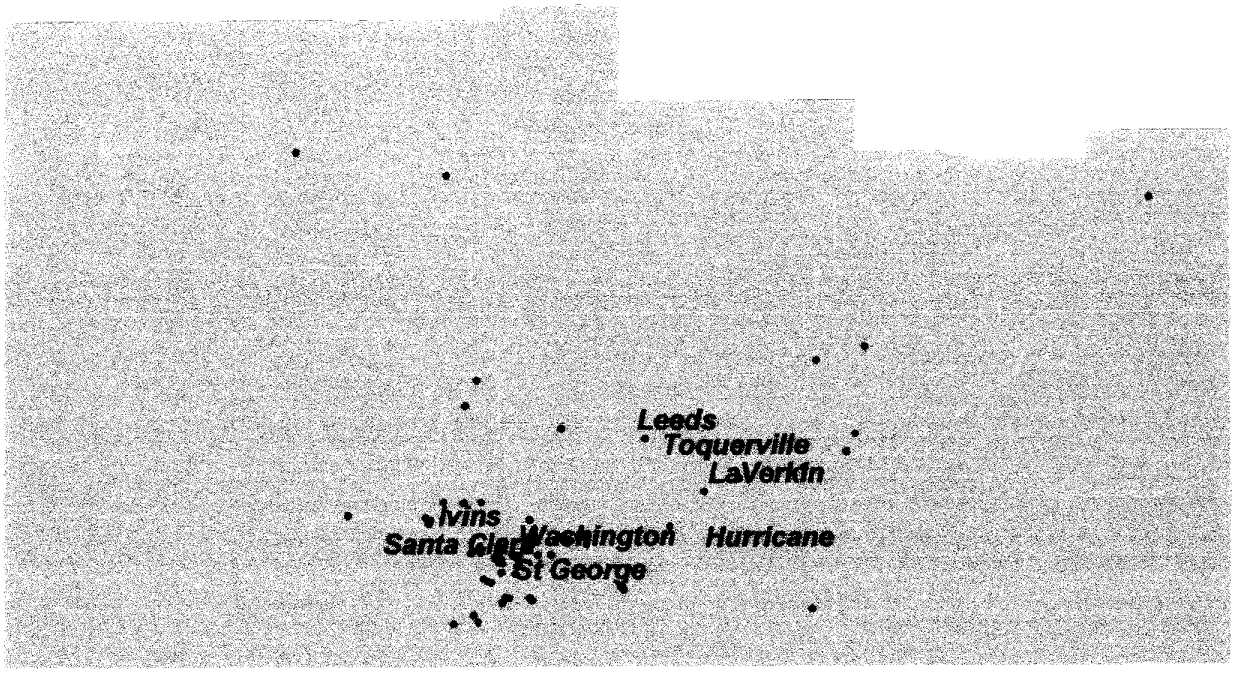


Figure 7
Population Distribution of Mobility Impaired in Washington County by Block Group
1 dot = 10



Fehr & Peers Associates, Inc. Transportation Consultants	Dixie Area Transit Feasibility Study Population Distribution of Elderly and Mobility Impaired	Figures 6 & 7

Figure 8
Distribution of Persons Below Poverty Level by Block Group
1 dot = 10

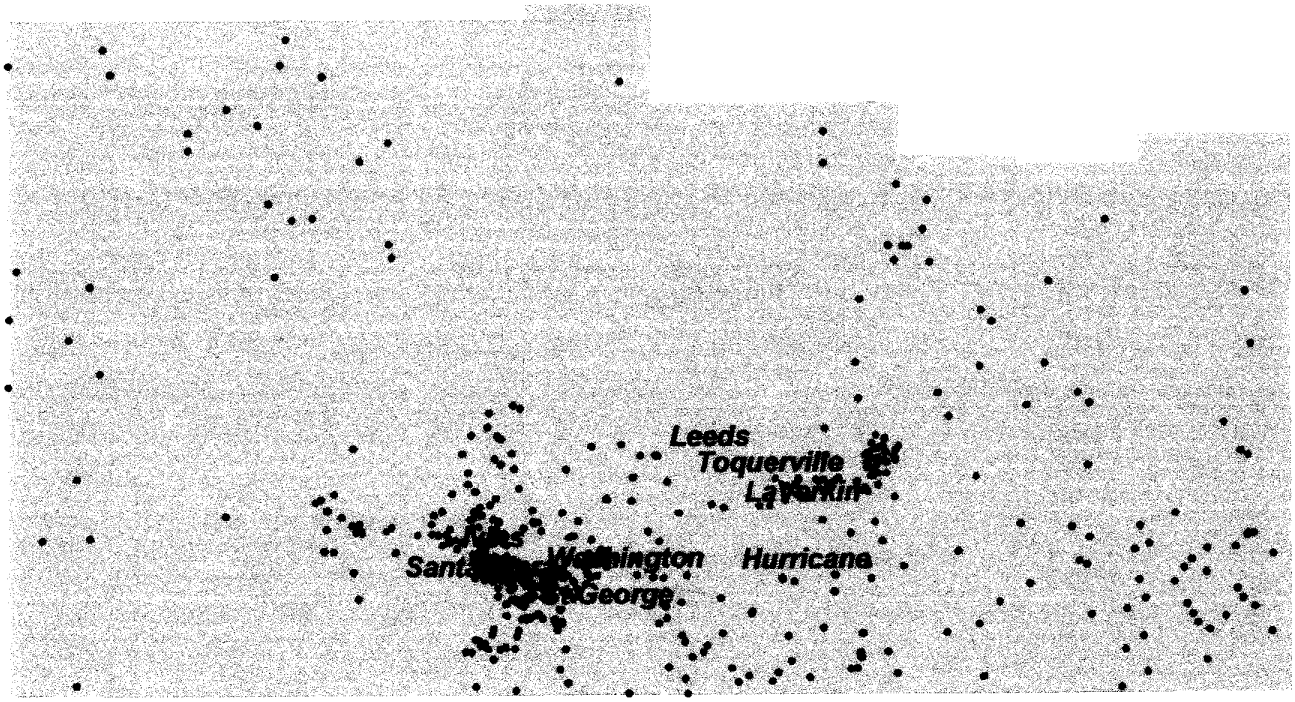


Figure 9
Distribution of Persons with no Vehicle by Block Group
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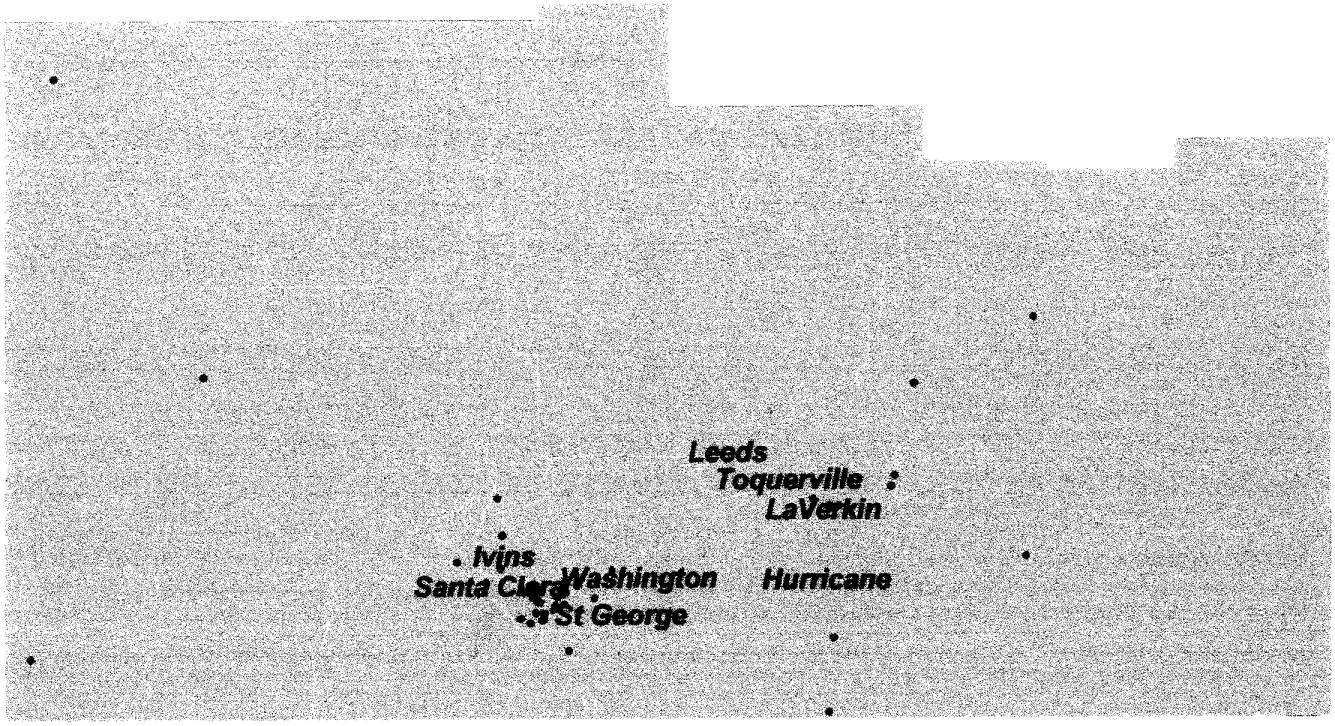


Fehr & Peers Associates, Inc. Transportation Consultants	Dixie Area Transit Feasibility Study Population Distribution of Poverty and 0 Vehicle	Figures 8 & 9

Table 2
Place Demographics
1990 Census Data

Place	1990 Total Population	Total Elderly Population Age 65+	Mobility Limited Population	Total Population Below Poverty	Households with No Vehicle
Hurricane city	3,915	664	54	614	40
Ivins town	1,630	171	14	271	4
La Verkin city	1,771	285	17	296	17
Leeds town	234	53	2	39	4
St. George city	28,502	5,160	481	3,551	431
Santa Clara city	2,322	243	28	109	9
Toquerville town	551	116	11	108	7
Washington city	4,198	633	74	400	11
	43,123	7,325	681	5,388	523

Source: U.S. Bureau of the Census, 1990 Census Data

Table 3
Place Demographics
1996 Census Data

Place	1996 Total Population	Total Elderly Population Age 65+	Mobility Limited Population	Total Population Below Poverty	Households with No Vehicle
Hurricane city	5,820	987	80	913	59
Ivins town	3,149	330	27	524	8
La Verkin city	2,684	432	26	449	25
Leeds town	263	60	2	44	3
St. George city	42,763	7,742	722	5,328	575
Santa Clara city	3,857	404	47	181	17
Toquerville town	724	152	14	142	9
Washington city	6,121	923	108	583	16
	65,381	11,030	1,026	8,163	711

Source: U.S. Bureau of the Census, 1990 Census Data, 1996 Population
**Population segments calculated based on 1990 Census*

Table 4
Place Demographics
2020 Projected Data

Place	Projected 2020 Population	Total Elderly Population Age 65+	Mobility Limited Population	Total Population Below Poverty	Households with No Vehicle
Hurricane city	15,450	2,620	213	2,423	158
Ivins town	8,619	904	74	1,433	22
La Verkin city	6,483	1,043	62	1,084	59
Leeds town	560	127	5	93	7
St. George city	104,065	18,840	1,756	12,965	1,398
Santa Clara city	9,124	955	110	428	41
Toquerville town	1,835	386	37	360	22
Washington city	16,230	2,447	286	1,546	41
	162,366	27,323	2,543	20,333	1,747

Source: Governor's Office of Planning and Budget 2020 Population Projections
**Population segments calculated based on 1990 Census*

General Ridership

Ridership demand for general ridership is based on vehicle ownership statistics. The methodology is taken from a model developed to estimate transit patronage for small urban areas. The model is described in detail in the Appendix.

Table 5
General Ridership

Place	Annual Demand Estimate 1990	Annual Demand Estimate 1996	Total Annual Trips Per Household 1996
Hurricane city	25,600	37,986	4,061,162
Ivins town	8,600	17,047	2,197,354
La Verkin city	11,100	16,066	1,872,879
Leeds town	2,300	1,779	183,520
St. George city	227,300	303,032	29,839,770
Santa Clara city	12,300	23,681	2,691,392
Toquerville town	4,200	5,152	505,203
Washington city	22,600	31,850	4,271,198
TOTAL	**314,000**	**436,593**	**45,622,477**

**Does not include para-transit estimate. Trips per household is based on a household trip rate of 6.5.*

Para-transit Ridership

A study completed by SG Associates, Inc. and Leigh, Scott and Cleary established an estimation technique for rural transit demand (Transit Cooperative Research Program Project A-3). The method of estimating ridership demand uses population statistics for mobility limited persons, 60+ population and the number of people below the poverty level. Population statistics are used in an exponential equation relating to the quantity of service and the demographics of the area. A copy of the TCRP equation is in the Appendix.

Table 6
Para-transit Ridership

Place	Para-transit Demand Estimate 1990	Para-transit Demand Estimate 1996
Hurricane city	2,578	3,832
Ivins town	843	1,628
La Verkin city	1,146	1,738
Leeds town	186	209
St. George city	18,215	27,328
Santa Clara city	775	1,288
Toquerville town	454	597
Washington city	2,206	2,864
TOTAL	**26,403**	**39,484**

The ridership demand numbers in both the general population as well as for para-transit do not reflect any overlap of vehicle ownership and the population segments used for para-transit.

Table 7
Comparison of Ridership Demand Estimates with Other Transit Programs

	Dixie Area *	Eau Clair, Wisconsin	Cheyenne, Wyoming	Logan, Utah	Billings Montana
Population	**65,400**	57,700	50,000	40,000	83,000
Ridership	**534,545**	706,000	153,652	1.1 million	706,000

**1996 population. 1996 ridership estimates.*

B. USER SURVEY

A user survey was conducted to evaluate community support for transit. Surveys were distributed at community meetings, through organizations such as care centers, as well as through governmental organizations, such as the Five County Association of Governments and Washington County. A total of 368 survey responses were received. In some cases, not all of the questions were answered. The total response to each question is indicated.

Where do you live? (Total Respondents = 356)

Location	Raw #	%
St. George	236	61%
Washington	22	6%
Bloomington Hills	21	5%
Hurricane	20	5%
Santa Clara	17	4%
Bloomington	16	4%
Ivins	9	2%
La Verkin	9	2%
Green Valley	5	1%
Cedar City	3	1%
Toquerville	3	1%
Veyo	3	1%
Kanab	3	1%
Leeds	3	1%
Enterprise	2	1%
Other	1	6%

What is your employment status? (Total Respondents = 375)

Status	Raw #	%
Full Time	197	53%
Part Time	60	16%
Student	24	6%
Retired	21	6%
Unemployed	19	5%
Part Time/Student	13	3%
Disabled	12	3%
Work at Home	5	1%
Other	8	2%

How do you normally get to work? (Total Respondents = 356)

Mode	Raw #	%
Drive Alone	217	61%
Carpool	36	10%
Workshop Van	18	5%
Walk	17	5%
School Bus	15	4%
Retired	8	2%
Bus	5	1%
Bicycle	4	1%
Other/Several Modes	36	11%

Where do you work? (Total Respondents = 316)

Location	Raw #	%
St. George	272	86%
Santa Clara	3	1%
Washington	3	1%
Kanab	2	1%
Retired/Don't Work	28	8%
Other	8	3%

Do you have a vehicle for your own personal use? (Total Respondents = 384)

Response	Raw#	%
Yes	255	66%
No	129	34%

Do you or someone in your household have any special transportation needs? (Total Respondents = 370)

Response	Raw #	%
No	271	73%
Yes	99	27%

How many times in the past year have you needed public transportation?

Response	Raw #	%
Never	120	43%
Less than 30 times/yr.	56	20%
Over 100 Yr.	71	25%
Every Day	20	7%
Other	14	5%

What geographic areas should public transportation serve?

The range of responses to this questions was too large to evaluate percentages. However, the most common response was clearly St. George. Two other common answers include 'Washington County' and 'All'.

Who should provide public transportation service?

Suggestions on who should provide transportation service range from UDOT, state, city, and private organizations. Approximately half of all total respondents answered this question.

Would you be willing to pay a fare to use public transportation? (Total Respondents = 376)

Response	Raw #	%
No	21	6%
Yes	355	94%

Would you be willing to increase taxes to support public transportation? (Total Respondents = 366)

Response	Raw #	%
Yes	188	51%
No	165	45%
Maybe/Unsure	13	4%

Some highlights to note about the survey are:

Need

- 27%, or 99 people, have special needs within their household.
- Of a total of 99 who responded with special needs, 77% (77 respondents) would use transit.

Funding Issues

- Of the 236 respondents (61% of those responding) that reside in St. George 116 respondents (49%) would support paying for transit either by user fares or taxes.
- Of the 217 (61%) total who drive their own vehicle to work, 94 respondents (approximately 40%) would increase taxes to pay for transit.

Because this is an unscientific survey, some pitfalls should be noted. In addition to the general public, surveys were distributed to group and retirement homes. Some of the data is skewed towards special needs, as is evident by the high number of special needs responding compared to the Census data of the broader area. No attempt has been made to aggregate respondents into a more representative sample of the general population.

5. Community and Political Support

As part of the process to identify issues, key players were contacted and asked to give their views on the role of transit in the Dixie area. The mayor of each city or town involved in the study, the entire Washington County Commission, and the entire St. George City Council was contacted for input. A total of 16 questionnaires were sent. A follow up phone call was made to each community representative asking for input. Four responses indicated the following issues.

The following people were contacted initially for their response:

Table 8
Political Survey Recipients

Name of City/County	Name of Contact	Title	Phone Number
Hurricane City	Doug Garner	Mayor	(435) 635-2811
Town of Ivins	Christopher Blake	Mayor	(435) 628-0606
LaVerkin City	Doug Wilson	Mayor	(435) 635-2581
Town of Leeds	Melvin Evans	Mayor	(435) 879-2447
City of St. George	Daniel McArthur	Mayor	(435) 634-5800
City of St. George	M. Royce Jones	Councilmember	(435) 634-5800
City of St. George	Sharon Isom	Councilmember	(435) 634-5800
City of St. George	James Eardley	Councilmember	(435) 634-5800
City of St. George	Larry Gardner	Councilmember	(435) 634-5800
City of St. George	Bob Whatcott	Councilmember	(435) 634-5800
City of Santa Clara	Fred Rowley	Mayor	(435) 673-6712
Toquerville Town	David F. Everett	Mayor	(435) 635-3320
Washington City	Mike Shaw	City Manager	(435) 634-9850
Washington County	Gayle Aldred	Commission Chair	(435) 634-5700
Washington County	Alan Gardner	County Commissioner	(435) 634-5700
Washington County	Jerry B. Lewis	County Commissioner	(435) 634-5700

Of those contacted, the following responded:

Table 9
Political Survey Respondents

Name of City/County	Name of Contact	Title	Phone Number
LaVerkin City	Doug Wilson	Mayor	(435) 635-2581
City of Santa Clara	Fred Rowley	Mayor	(435) 673-6712
Washington City	Mike Shaw	City Manager	(435) 634-9850
Washington County	Jerry B. Lewis	County Commissioner	(435) 634-5700

The following issues were discussed:

Existing Issues and Problems in the Dixie Area
The primary issue that communities face is a growing population that has put pressure on the infrastructure. It is not believed that public transit would reduce traffic on the road systems.

Current Transportation Problems
Three major transportation problems were cited. Main routes experience congestion, particularly Bluff Street and St. George Boulevard. Travel patterns are generally from outlying areas into St. George, to work and shop. These patterns add to congestion on main routes. Rapid population growth and inadequate funding for road improvements were also cited.

Transportation and Economic Vitality
Limited access to cities along with the conditions of existing roadways make it not feasible for new commercial and industrial development. Transportation improvement would aid St. George's economy but not the smaller communities. At present, the effect is minimal.

Need for Transit
There is some need for public transit. Some of the destinations identified included St. George and the Zion Area. Those who would benefit include the elderly and youth populations.

Benefit of Public Transit
The primary beneficiaries of transit would be youth, parents and the elderly.

Trends Affecting Transportation
- Aging population
- More traffic
- More transaction with computers (resulting in a deduction of some trips)
- Low wages

Funding Transit
User fees, sales tax, and grants were all cited as viable options to fund transit.

Transit Priorities
Transit priorities include the opportunity to give the youth, elderly, and low-income individuals a mode of transportation, to move people from outlying areas of the county to the county center, and fast, convenient, on-time services, and routes that reflect the needs of ridership.

Transit Implementation

The county or transit authority could best implement a transit system.

Goals of Transit

Transit routes should begin where the greatest ridership exists. Transit services should only be increased as demands dictate. Private carriers should be encouraged to provide services when possible. Public transportation should serve the area only when it is not economically feasible for the private sector. Cities should be involved in the decision making process.

6. Existing Transit Resources

The initial step in conducting a transit feasibility study is to gather baseline data for existing transit resources. Transit, as it is used commonly, refers to public transportation service requiring some form of payment. It is used here, however, as a broader term meaning any transportation service that is provided, including social services and tour operators. To gather this type of data a survey was sent to all known transportation providers in the study area. A list of agencies contacted and a copy of the survey is in Appendix A. A total of 24 surveys have been returned as part of the study. Of the 24, 16 provide some type of transportation service. A summary of each service is described below.

Southwest Center (230 East Tabernacle)
The Southwest Center is located in St. George and provides mental health services to persons with mental disabilities. The primary transportation services provided by the agency is to transport clients to and from medical appointments. The agency services 5 counties, including Washington, Iron, Beaver, Kane and Garfield. Within Washington County services are provided to St. George, Washington, Hurricane, Enterprise and Cedar City (Enterprise and Cedar City are in Iron County). The services run on a demand responses basis and is available every day from 8:00 a.m. to 10:00 a.m. There are approximately 150 clients that use a combination of vans and cars.

Southwest Center (354 E. 600 South)
The Southwest Center provides mental health services to citizens of Washington County. They transport clients to and from the Independence House Monday through Friday from 7:30 – 9:00 a.m. and 3-5:00 p.m. The service has 2 full time drivers, 2 vans and one car. Funding for the program comes from Medicaid and additional agency funding sources.

FACT Health Department
FACT Health Department assists families in need and serves the St. George area. Services are provided for 250 clients from 8:00 a.m. to 5:00 p.m. and by appointment.

Southwest Utah Public Health
Southwest Utah Public Health promotes public health programs throughout Washington, Iron, Beaver, Garfield and Kane Counties. Offices in St. George and Hurricane transport clients to services in state cars. The service is provided as needed. The agency uses 10 cars and has a contact list of approximately 15,000.

Washington County Schools
The Washington County School district provides transportation service exclusively for school children. The district operates 80 buses, 12 vans, 30 cars and 18 trucks. The services are on a fixed route and operates from 7-9:00 a.m. and from 2:30 to 5:00 p.m.

Washington County ARC
Washington County ARC provides low fare transportation services to people with disabilities in St. George and the surrounding area. Services are provided every day from 8:00 a.m. to 9 p.m. Clients are charged for transportation services. There are 2 full time drivers, 2 part time drivers, and 1 van.

L. Merlin Sullivan
L. Merlin Sullivan operates out of Leeds, Utah and provides contract tour bus operations. As a private industry, the agency operates on a demand-response basis during their normal business hours. There is one full time and one part time driver and 2 buses.

Auto Bus, Inc.
Auto Bus, Inc. operates from St. George, providing recreational, airport and hotel shuttle services. The company serves all of Southern Utah and Nevada, seven days a week during daylight hours. The company has 6 full time drivers operating 6 vans. They plan to increase the number of vehicles.

Southern Utah University Head Start
Head Start provides education for pre-schoolers and their families for low-income households. The agency operates from Cedar City, Utah and serves St. George and the Hurricane area. Services are provided on a fixed route and schedule Monday through Thursday from 7:00 a.m. to 4:30 p.m. There are a total of 7 mini buses, 3 vans and 1 truck.

Dixie College Conference and Workshops
Dixie College Conference and Workshops includes an elderhostel, travel study, and a golf academy. Transportation is provided to and from activities and meals on 9 coach buses, 4 old school buses, and 4 vans. Several locations are served, with St. George and Springdale the only locations in Washington County. Transportation is provided every day.

Washington County Mini-Bus Project
This project transports senior citizens to nutrition centers on a weekly basis. St. George, Hurricane, and Enterprise are served on a fixed schedule for each community. A fare of $2.00 is charged for each trip. Six vans are operated.

Ivy Cottage Children's Center
Ivy Cottage provides education, child care and day treatment for children. Transportation is provided in the form of busing to and from public schools and some private homes Monday through Friday. There are approximately 25 clients served with one van and two cars.

5 County Agency on Aging
Services are provided to persons 60 years and over in the form of rides for senior citizens to senior centers, shopping, medical and recreation. All five counties are served, Beaver, Garfield, Iron, Kane and Washington. Operations range from fixed route and demand

response, depending on the route. Services are provided Monday through Friday from 9:00 a.m. to 4:00 p.m.. The client list is approximately 600 people for all five counties. The agency operates a total of 12 vans.

Color Land Tours

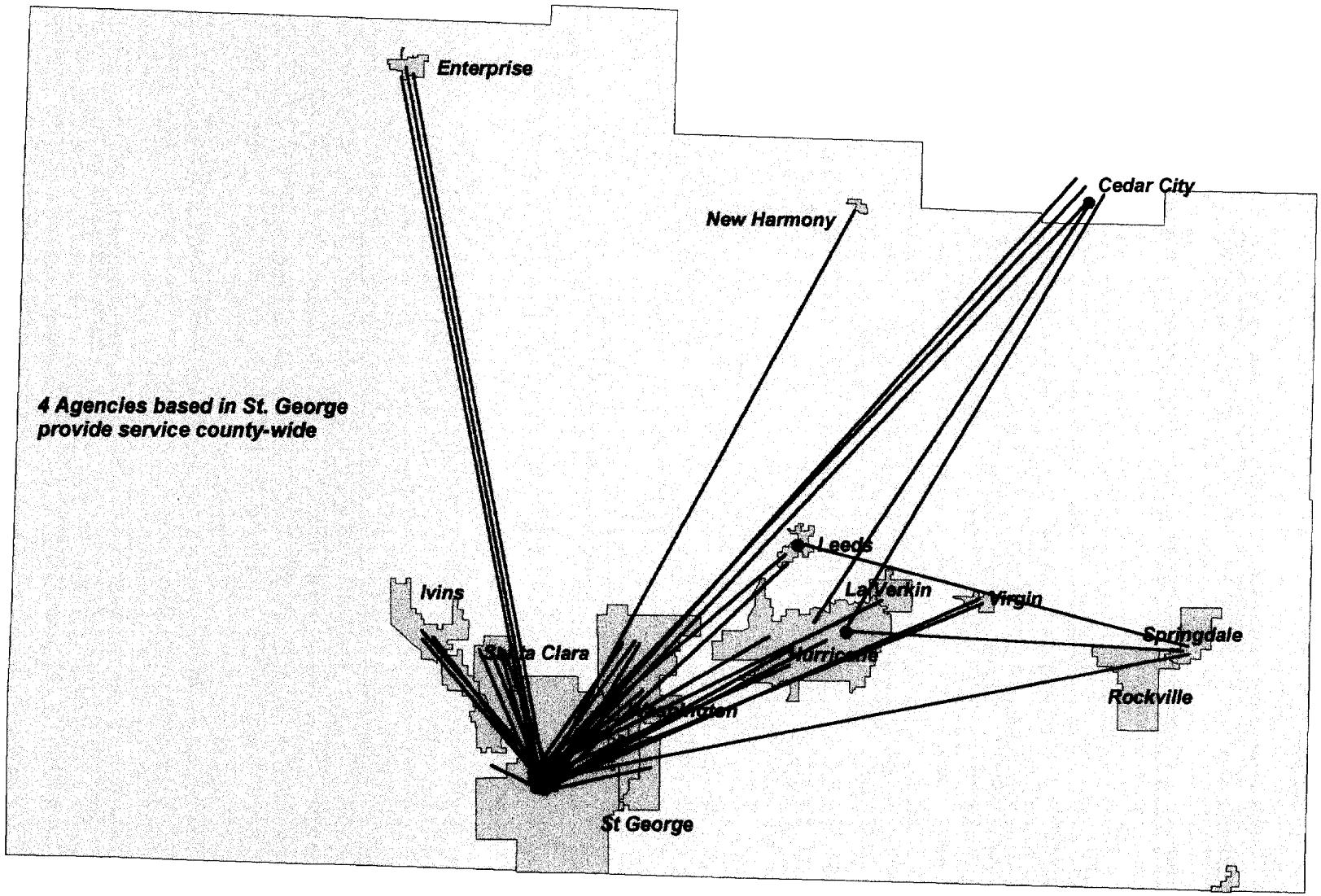
Color Land Tours operates a tour guide service for national parks and surrounding areas. The company is located in Hurricane Utah and operates one car.

Iron Parke Corporation

Iron Parke provides direct care services to adults, children and persons with disabilities. Services are provided daily form 8:00 a.m. to 9:00 p.m. and as needed. A fare of $7.20 per day or $.30 per mile is charged. There are approximately 60 clients, 4 vans, and 10 full time drivers.

Washington County ARC

Washington County ARC provides services for people with mental retardation. Transportation services are provided on a demand response basis to St. George and the surrounding area. A fare of $.50 per trip is collected. They operate a total of 6 vans with 40 part time staff.



● Public or Non-Profit Transit Service Origin
——— Public or Non-Profit Transit Service Route
● Private Transit Service Origin
——— Private Transit Service Route

Fehr & Peers Associates, Inc. Transportation Consultants	Dixie Area Transit Feasibility Study Existing Transit Resources	Figure 10

7. Service Alternatives

Each service alternative must be evaluated using locally established goals and objectives. Any alternative which does not support the mission of public transportation and the corresponding goals and objectives should not be considered for implementation. Several of the alternatives which have been considered initially may be rejected because they do not support the goals and objectives. Other alternatives appear to support the goals and objectives and will be given more consideration for service in the Dixie area.

A. TYPES OF SERVICE

The term "transit service" encompasses a wide range of alternatives. Traditionally, people think of transit service as vehicles operating on a strict schedule over a pre-determined route such as the UTA service in the Wasatch Front, LTD in Logan, or CAT in Las Vegas. A number of other transit service types exist, including route deviation, checkpoint deviation, and user-side subsidies. This chapter explores the transit service alternatives for the Dixie Area.

Fixed Routes

Fixed-route service fits the popular description of a bus system. Vehicles operate on a predetermined route following a set schedule. Specific stops are typically identified for locations where passengers will be picked up and dropped off. Routes are usually laid out in either a radial or grid pattern. In a radial route structure, all routes originate from a common point and extend to outlying areas. The central location serves as a transfer point and is frequently located at a destination with high transit activity. In many communities, this is the central business district or downtown. In a grid system, transfer points are identified where various routes intersect.

Fixed-route service is convenient for passengers without mobility impairments. Research has shown that fixed-route passengers are willing to walk up to a quarter-mile to reach the bus stop, although very few will walk a greater distance. A fixed-route service pattern may be efficiently laid out with routes having half-mile spacing. However, those individuals with mobility impairments may have difficulty in accessing the fixed-route system. The advantages of a fixed-route service are: 1) it can be provided at a relatively low cost on a per-passenger-trip basis; 2) schedule reliability is high, since buses do not deviate from the route; and 3) service does not require an advance reservation.

Fixed-route transit service is seldom attractive for people with automobiles in smaller communities and rural areas. A private automobile offers flexibility compared to the rigid schedule of a fixed-route system. The need to walk even a few hundred feet to a bus stop, coupled with waiting for the vehicle and the comparatively slow travel time, makes the option of a private automobile an easy choice. Where there are significant congestion effects or limited parking availability, fixed-route transit becomes a more attractive alternative.

Fixed-route service requires that a community provide complementary para-transit service under the Americans with Disabilities Act. The para-transit service must provide service characteristics similar to the fixed-route service. Para-transit service is typically much more costly to operate than fixed-route service because of the characteristics of the service. Fixed-routes are established to meet the highest demand travel patterns while para-transit service must serve many origins and destinations in a dispersed pattern.

Service Routes

One concept which is being implemented in some communities as an alternative to traditional fixed-route or demand-response service is the service route. A service route is essentially a fixed route specifically designed to serve the elderly and disabled. Typically, a service route winds through residential neighborhoods with high concentrations of elderly and disabled persons in a pattern that passes within a block or two of all houses. It also directly serves important destinations, such as senior centers and commercial areas. The service provides a higher in-vehicle travel time and a longer wait for the bus than would normally be acceptable to the general public.

Demand-Response Service

Demand-response transit service, frequently termed dial-a-ride, is characterized as door-to-door service scheduled by a dispatcher. A 24-hour advance reservation for service is normally required, although some immediate requests may be filled as time permits and if the service is particularly needed. The concept of demand-response was originally developed in the early 1970s as an alternate form of public transportation for the general public. The original efforts proved to be more expensive than envisioned and did not attract the ridership which was forecasted. As a result, demand-response transit has been used almost exclusively in this country for elderly or passengers with disabilities. However, many communities are beginning to recognize the advantages of demand-response service for low density areas with low levels of transit demand. Improved technology has led to improvements in dispatching and scheduling which has increased the efficiency of demand-response service.

Flexible Routes

Another alternative to fixed-route and demand-response service is flexible routes, route deviation, or checkpoint deviation. With flexible routing or route deviation, transit vehicles follow a specific route, but leave the route to serve demand-response origins or destinations. The vehicles are required to return to the designated route within one block of the point of deviation to ensure that all intersections along the route are served. Passenger onboard travel time is greater than for fixed-route service, and the service reliability is lower.

Under checkpoint service, vehicles make periodic scheduled stops at centers of activity, such as program sites, shopping areas, or residential communities. Specific routes are not established between checkpoints, allowing the vehicles to provide demand-response

service. Riders are picked up—typically at a reduced fare—at these checkpoints and taken either to another checkpoint or to a demand-response specific destination. Service between checkpoints does not require advanced reservations. However, service from any other location on a demand-response basis would require an advance reservation so that the vehicles could be scheduled and diverted between checkpoints.

Vehicle dispatching and scheduling must be done carefully. The dispatcher must be careful to ensure that a vehicle is available to serve designated stops within the specified service time. To provide a reasonable amount of flexibility, a lenient definition of on-time performance is typically used. A reasonable policy for route deviation or checkpoint service in the Dixie area would be a 10-minute window at each designated stop within St. George and 15 to 20 minutes at stops outside St. George.

Checkpoint service offers an advantage over route-deviation service because there is no specified route for the vehicles to use. As described under route-deviation service, the vehicles must return to the route within one block of the point where the vehicle left the route. Checkpoint service, on the other hand, requires only that the vehicle arrive at the next checkpoint within the specified time period.

User-Side Subsidy

The user-side subsidy is an approach often used with private transportation providers. The subsidy is provided to the user, typically in the form of a coupon for service. The user receives transportation services from an approved provider and the coupon is submitted as part or all of the payment. The transportation provider is then reimbursed for the service.

Shared-ride Taxi

Shared-ride taxi is a form of public transportation provided by private taxi operators. The service operates similar to a demand-response transit service, but the provider is the local taxi operator. The taxi operator is frequently subsidized to keep fares at an affordable level. This approach is prevalent in small communities throughout the state of Wisconsin.

Both the shared-ride taxi and user-side subsidy approaches can be effective for rural areas. Public transportation service is provided without a public entity setting up a transit system. Private transportation providers, such as taxi operators, are given business and often are supported sufficiently that the business may survive in areas where private operators often are unable to generate sufficient revenue.

School Buses For General Public Transit

This option is to use school buses for general public transit service. School buses operate throughout the rural areas of the counties and could provide transportation to the larger communities for rural residents. Non-student riders would have to be accommodated on the regular school bus routes and only if space is available. This alternative does not include any special runs for the general public, but rather the public would ride on regular school bus runs. Service would have to be augmented by vans or other vehicles during the summer and other school vacations to maintain the service and meet the needs of residents using this service.

B. INTRA-CITY SERVICES

These are services which would operate within individual communities. The communities which are considered include Hurricane, Ivins, La Verkin, Leeds, St. George, Santa Clara, Toquerville, and Washington. The estimated demand for service in these communities ranges from 1,780 annual trips in Leeds to 303,000 annual passenger-trips in St. George. Most of these communities are small with little employment. Many of the major trip generators in the study area are within St. George and Washington.

Sufficient data are not available to determine an actual cost of current/existing transit operations in the Dixie area. Current providers track and record costs in different ways, so there is no good estimate of costs in the local area. However, similar areas and other services in Utah indicate that a range of $25 to $30 per operating hour is a good estimate. For comparing alternatives, an hourly cost of $30 has been used.

The potential for transit trips within individual communities is very low in the communities other than Hurricane, St. George, and Washington. There is limited demand in Ivins, La Verkin, and Santa Clara and virtually no demand in Leeds or Toquerville. Service within the communities of Toquerville or Leeds would be very expensive for the number of passengers served. Daily service in either of these communities is expected to cost approximately $95,000 annually. This would be a cost of more than $35 per passenger-trip. Daily service in the communities of Ivins, La Verkin, and Santa Clara would cost approximately $10 per passenger-trip. This is a reasonable cost for demand-response service with a productivity of approximately three passengers per hour. The level of demand within these communities is not sufficient to support any type of fixed-route service presently.

Demand-response service in the communities of Hurricane and Washington would cost about $190,000 annually in each community. The service would be expected to carry about 20,000 passenger-trips annually in each community at a cost of approximately $9.50 per passenger-trip. To meet the demand in either of these communities with a fixed-route service would cost approximately the same, but would also require complementary service at a cost of about $95,000 annually. The para-transit service would have a cost per passenger-trip of about $12.

Demand-response service in St. George could cost as much as $2,000,000 annually to meet the full demand. A fixed-route service with six buses in operation could provide similar service at a cost of about $600,000 annually. This would require an additional para-transit service at a cost $250,000 annually. As can be seen, meeting all of the public transit demand with a demand-response service in a community the size of St. George is not cost-effective. A combination of fixed-route and demand-response para-transit service is a better solution. To be effective, the service must be designed to meet the needs of expected users.

An alternative for service within St. George is to implement a route-deviation or checkpoint service. Although this service has a higher cost than a comparable fixed-route service, it offers some flexibility and can reduce the need for complementary para-transit service. This hybrid service is also good in areas of low density and low ridership. A number of areas within St. George fall into this category and should be considered for checkpoint or route-deviation service. This may also be a good approach for introducing public transit service in St. George. The service could be implemented in phases, beginning with a checkpoint service and adding fixed-route as demand increases and financial resources become available to support the service.

Portions of St. George also offer the opportunity to implement a service route. Service to senior housing, medical facilities, senior centers, grocery stores, and other key destinations could be put together into a single service route. The route would not be the most direct between destinations, but it would provide service to these key places and allow residents to have mobility that they would not have without a transit system. The cost of a service route is the same as the cost of operating a single fixed-route, or about $95,000 annually. The number of passengers on a service route will depend on the frequency of service and the locations which are served. Typically the demand is lower than for a fixed-route because of the type of service and the characteristics of the passengers being served.

C. INTERCITY SERVICES

These services would operated between the communities. The service could include transportation for medical appointments, commuting, and personal business. There is a need for service from outlying communities to St. George for all of these purposes. There is significantly less demand for service between the other communities, although the geography of the area would make service between communities an option with service to St. George. For example, service from Hurricane to St. George could easily serve Washington along the route. One daily round-trip for these intercity services would cost approximately $16,000 annually. However, only one trip would have limited attractiveness. The schedule would either support commuters or those on personal business, but could not serve both. A better option would be to offer two daily round-trips—one for commuters with service in the morning and evening and the other for personal business with midday service.

Travel times, congestion, and parking conditions in the Dixie area will not attract users from private automobiles to transit. There will be some choice riders who use transit for a variety of reasons, but transit should not be expected to attract a large percentage of choice riders. Therefore, any service should be designed with transit-dependent users in mind. Although the potential exists to serve park-and-ride lots in outlying communities, this should not be seen as a major component of the potential transit ridership. A much larger market segment will be those without vehicles (possibly the second person in a single-vehicle household) who needs to travel to St. George for work, college, or other personal business.

D. REGIONAL SERVICE

Outside the area around St. George (including the communities of Santa Clara, Ivins, Washington, Hurricane, La Verkin, Leeds, and Toquerville) there is very low population density and long travel distances. There are needs for public transportation in the larger region. However, these needs are also very expensive to serve. The need is demonstrated by the county-wide service provided by four agencies based in St. George. County-wide service should be provided for specific needs, such as senior or developmentally disabled programs, and should not be offered as a regularly scheduled public transportation system. Service should be offered to the public only as the schedule permits. Vehicles should be scheduled for service to meet the specific needs and the general public may ride when the service is provided.

8. Comparison of Transit Systems

Table 10
Comparison of Transit Systems

	Eau Claire Transit Eau Claire, Wisconsin	City of Cheyenne Transit Cheyenne, Wyoming	Park City Transit Park City, Utah	Logan Transit District Logan, Utah	MET Transit Billings, Montana
Population Currently Served	57,000	50,000		40,000	83,000
Annual Ridership	706,000	153,652		1.1 million	706,000
Portion of transit service provided through a contract with a private transit operator.	ADA Para-transit complimentary service	None	None	All.	None
Portion of transit service provided without the assistance of a private transit operator.	Fixed routes service using city employees.	All	All. Bus service throughout the city. Funded 1/3 by resort city sales tax, 1/3 by ¼ cent tax, 1/3 by business license fee.	None	All
Deciding factors for either private operation or contracting for service.	City assumed regular service from a private bus company and contracted with a private agency for Para-transit to avoid investment in equipment.	N/A	The city funded private operation through a voter referendum in 1989.	Better cost containment, flexibility innovation. Benefits outweigh the costs.	Past experiences 'bailing out' private providers prompted the city to take control.
Does private operator use own vehicles or lease vehicles purchased by you?	Contractor acquired vehicles through former 13c program.	N/A	N/A	City provides all vehicles, fuel and related maintenance parts.	N/A
How has the contract relationship with private transit operators changed over the past 5 years?	Challenging to convince the contractor that if the city pays the bills the city makes the decisions. Contractor does not always follow ADA policy.	N/A	N/A	Contract relations have generally been good. Laidlaw has purchased its largest competitors and is now very large.	Used a private operator until 1996. MET took over the para-transit service from the operator.
How might it change over the next 5 years?	Will probably not continue private contract service. Possibility of entering into a cooperative agreement with the County to help contract for both services.	No change anticipated.	Potential extension of service to The Canyons resort. The Canyons uses a private contractor to transport to and from SLC. Could impact Park City transit.	Service is expanding into the County. Construction of a maintenance/operations, administration facility. LTD will look into bringing service in-house through a traditional bid process.	No change anticipated.
What transit companies do you contract with?	Eau Claire Special Transportation	N/A	N/A	Laidlaw Transit Services	N/A

Table 11
Advantages and Disadvantages of Types of Service

Type of Service	Advantages	Disadvantages
Contracted with a Private Transit Operator*	• Cost containment – profit motive requires contractors to keep costs low. • Flexibility – private firms are traditionally more flexible than City governments. • Innovation – if a private contractor doesn't innovate, they're out of business. Bid process brings new ideas. • Expertise – a private contractor can afford to have experts in various fields on staff. • Accountability – performance measures can be set and enforced with an operating contract. • Better access to capital equipment.	• Greater contract administration costs/time required. • Costs can spiral if a contractor is retained for a long period of time. • There is always pressure from the contractor to expand their scope of work. • Contractors can exert strong political pressure for continued contracts. • Bidding process is time consuming and expensive for both the procuring agency and bidders.
Transit Service Provided Publicly	• Direct control. • Easier accountability. • More varied subsidy applications. • Better control of employees (i.e. drivers), ensures good customer service. • Stability for the community. • Costs are controlled.	• Can be more expensive. • Requires expertise that is not always available in current staffing. • Can add another level to City government. • Requires more staffing.

*Advantages and disadvantages of contracting with a private transit operator were provided exclusively by Geoff Straw of Logan Transit District

9. Implementation Recommendations

A. St. George Service

Checkpoint Service

Existing transit resources should be pooled to implement a checkpoint service within St. George. There are adequate resources within the community to implement such a service. Figure 11 shows possible checkpoints which should be served. These include the St. George Commercial Center, Dixie Medical Center and nearby clinics, Dixie College, Southwest Center, the IHC Medical Center, and Red Cliff Mall. These checkpoints could be served by a single vehicle, although service would only be hourly. Much better service would be offered with the use of two vehicles operating every 30 minutes.

In addition to the checkpoint service and based on the ridership demand estimates discussed in Chapter 4, demand-response service should be provided within St. George. Some demand-response service would be provided by the vehicles on the checkpoint service, but this must be limited so that vehicles remain on schedule. Two additional vehicles should be used for demand-response service. As demand for the service increases, this could increase to three or four vehicles in service during periods of peak demand.

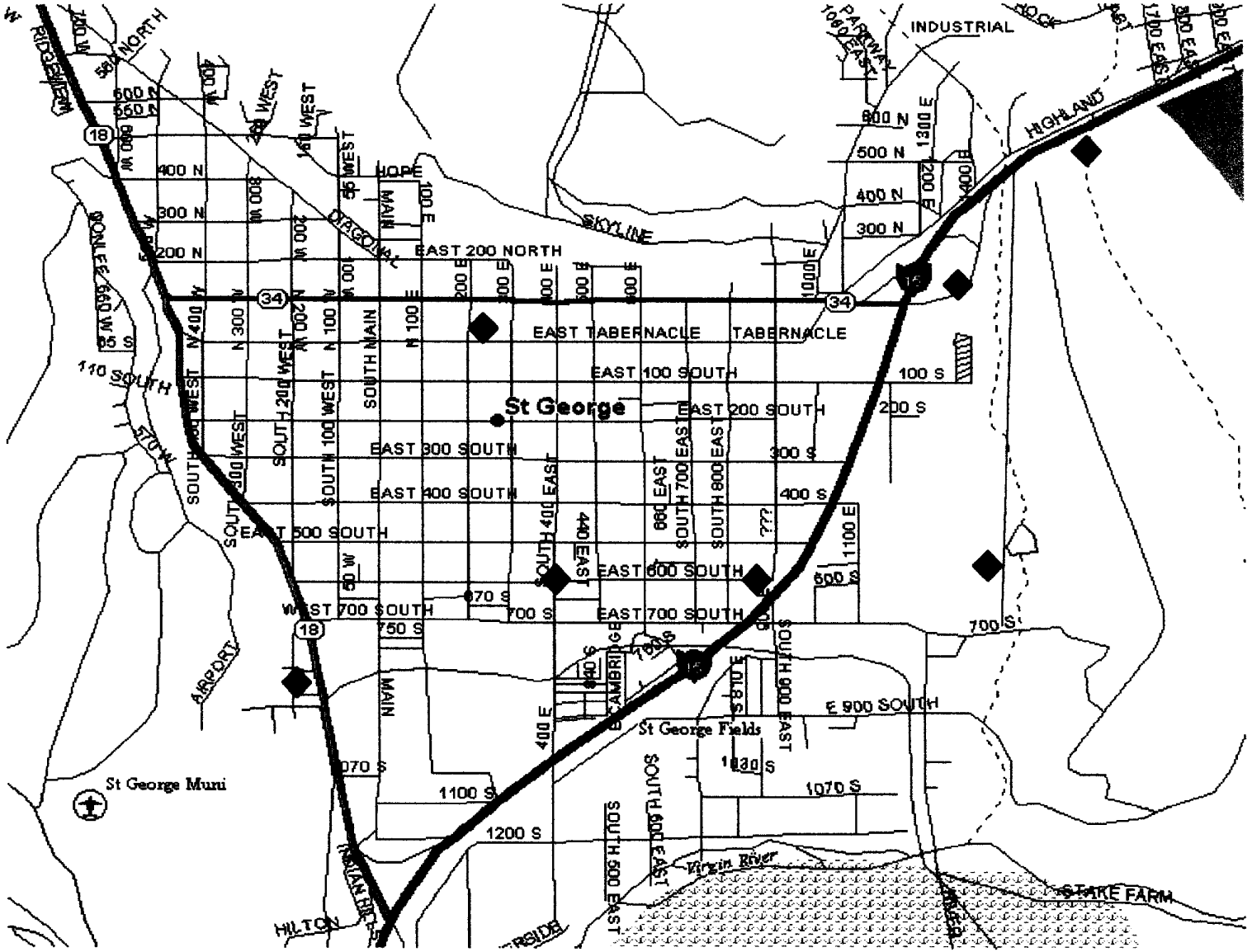
Service Route

A service route should be started as demand begins to exceed the capability of the checkpoint service. This should be anticipated in three to four years following startup of the transit service. Figure 12 shows a service route which would serve many of the same locations as the checkpoint service. The same vehicles could be used, although a low-floor bus would be better for the service route. This route would take approximately one hour and should be served by two vehicles so that service occurs every 30 minutes.

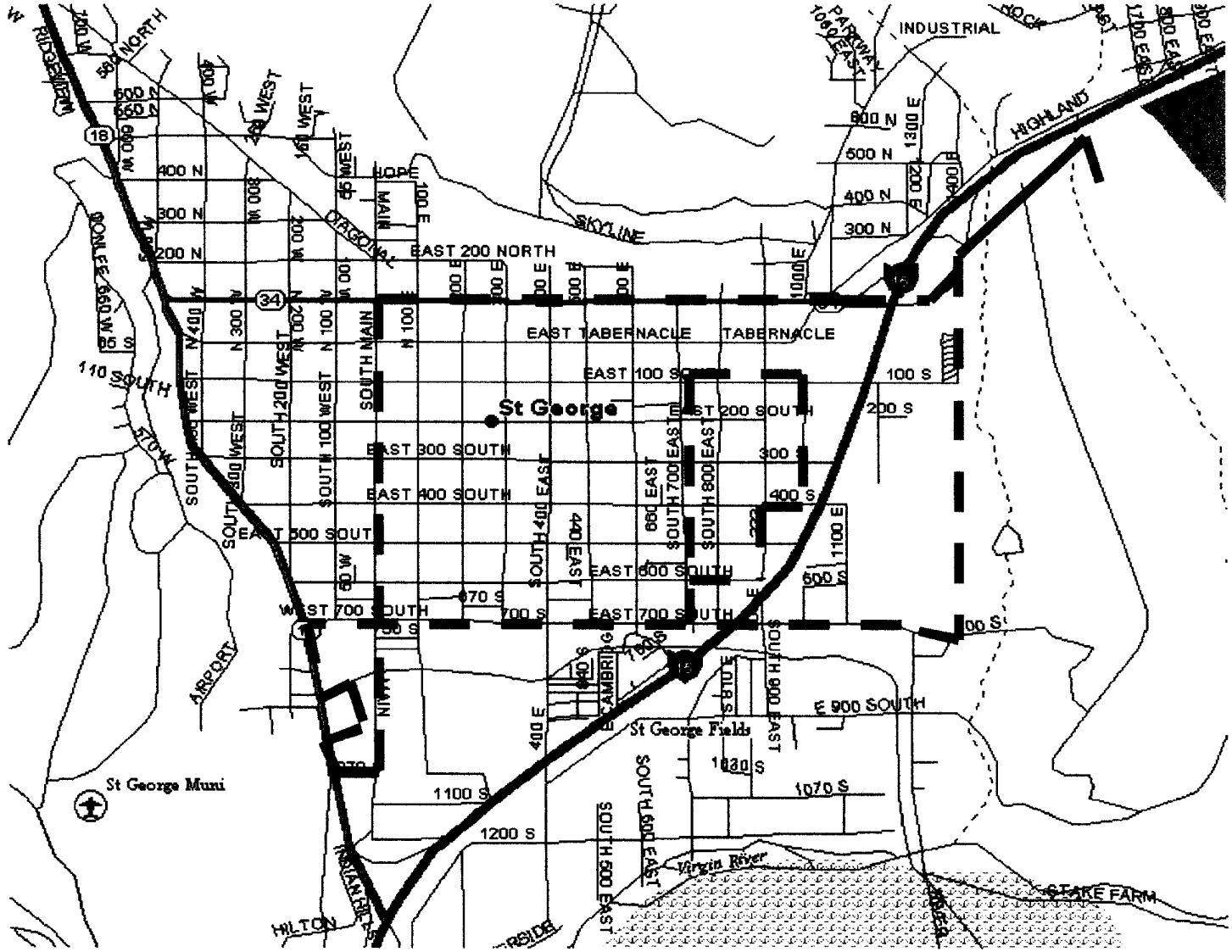
When the service route is implemented, there will be a need for increased demand-response service as the checkpoint vehicles will no longer be available to meet some of this demand.

B. Intercity Service

The recommended intercity service is to operate two round-trips daily from Santa Clara, Washington, and Bloomington. The recommended schedule would be for a bus to leave each community, arriving at key destinations prior to 8:00 a.m. The return trip would leave after 5:00 p.m. Destinations could be served initially on a demand-response basis. The other trip should leave the communities at about 10:00 a.m. and return about 2:00 p.m. This trip would meet the needs of those who have personal errands or medical appointments. Passengers could use either trip to meet their needs. For example, someone with a morning appointment could travel to St. George on the early trip and return on the midday trip. It would cost very little to provide an outbound trip in the morning and an



Fehr & Peers Associates, Inc. Transportation Consultants	Dixie Area Transit Feasibility Study Possible Checkpoints	Figure 11



Fehr & Peers Associates, Inc.
Transportation Consultants

Dixie Area Transit Feasibility Study
Proposed Service Route

Figure 12

inbound trip in the afternoon since the vehicle will have to travel that direction to start or end the service.

Vehicles for this service should be fully accessible and capable of operating in a para-transit or route-deviation mode at either end of the trip. This will preclude the need for a complementary para-transit service and keep costs at a reasonable level.

C. PROJECTED OPERATING COSTS

Table 12 shows the projected operating costs for the recommended services over the next five years. This service represents a preferred service option which is contingent upon revenues shown in Chapter 10. Service may need to be limited if revenue forecasts do not occur. Capital costs for acquiring new vehicles or facilities are not included. There is no escalation for inflation.

Table 12
Projected Operating Costs

Service	2000	2001	2002	2003	2004
Checkpoint	$190,000	$190,000	$190,000		
Service Route				190,000	190,000
Para-transit	190,000	190,000	285,000	285,000	380,000
Inter-city	95,000	95,000	95,000	95,000	95,000
Total	$475,000	$475,000	$570,000	$570,000	$665,000

Additional fixed-route service has not been recommended during the first five years. Although there is potential for fixed-route service in St. George, the cost of implementation is high and the characteristics of the community do not support the immediate startup of a major fixed-route system. After three or four years of service, the needs of the community and the success of the service which is implemented should be evaluated to determine if it is appropriate to begin implementing fixed-route service. It may be more appropriate at that time to add additional checkpoint service or general public demand-response service within other areas of the community.

10. Funding and Institutional Issues

This chapter analyzes and presents ways to develop the best long term and cost-effective method to fund the service recommendations which requires both capital and operating sources of revenue. Below is a general discussion on organization issues which will effect those future funding decisions followed by an overview of funding sources. Specific recommendations on the best way to fund the service recommendations will follow.

A. Organization Issues

Currently, the coordination for transit services and funding is managed by the Five County Association of Governments, located in St. George. The Five County AOG is responsible for grant applications and management. Every county in Utah belongs to one of the seven AOGs across the state.

The Five County AOG began in 1957 as the Five County Organization, and became the Five County Association of Governments in 1972. The AOG is a voluntary organization. "The overall mission of the association is to serve as a multi-purpose organization to provide a forum to identify, discuss, study, and resolve areawide problems of common interest and concern and to engage and carry out planning and development programs with respect to the physical, economic, and human resources of the area." The Five County AOG serves other roles in addition to transportation coordination. It manages a total of twelve programs, ranging from a Community Impact Board, Travel & Tourism, to a weatherization program.

An area is designated an Urbanized Area (UA) when a contiguous urban area reaches 50,000 or more population. They are designated every ten years after each census. There are currently four Urbanized Areas in Utah: the Ogden UA, Salt Lake UA, Logan UA, and Provo/Orem UA. The Logan area became the state's newest Urbanized Area after the 1990 census. St. George, in all likelihood, will become an Urbanized Area after the 2000 census. Sometimes this urbanized area can cut through city boundaries, such as in Salt Lake City. The western part of the incorporated city near the Salt Lake City International Airport is not a part of the Salt Lake Urbanized Area. This is because that part of the city is relatively unpopulated.

Once the Urbanized Area is established, a functioning Metropolitan Planning Organization (MPO), with the products discussed below, is required in order for federal transit or highway funds to be programmed and spent. An MPO has a governing board made up of local governments, the transit providers, and *ad hoc* participation from UDOT, FTA, and the Federal Highway Administration (FHWA). Responsibilities of the MPO are to conduct the 3-C planning process (continuous, coordinated, comprehensive). This puts the MPO in the role of a "go-between" with the local governments and UDOT, FHWA, and FTA. Federal rules require a *Long Range Transportation Plan* covering all modes, a *Transportation Improvement Program (TIP)* listing all federally funded

transportation projects in the area, and a *Unified Work Program (UWP)* describing the work tasks of the MPO for the upcoming year. Other duties may include tasks such as air quality conformity, creating a Transit Development Program (TDP), tracking socio-economic conditions, and conducting special transportation studies.

In two instances (the Wasatch Front Regional Council and Mountainlands Association of Governments) the AOG is the MPO. However, the two organizations can certainly co-exist, each having distinct roles and responsibilities, as is the case with the Cache MPO and the Bear River Association of Governments in the Logan area.

The advantage of an area becoming an Urbanized Area (and thus having an MPO) is that the transit funding opportunities are increased. The MPO could conceivably be the transit provider as well. A current transit provider could also be the nucleus of the MPO. The disadvantage is that providers within the MPO boundaries will no longer be eligible for rural transit funds (Section 5311).

B. FUNDING SOURCES

There are a variety of funding sources available for transit, each with their own purpose. Most are from the U.S. Department of Transportation, Federal Transit Administration (FTA), although some form of local participation is also necessary, whether to match the federal dollars or for direct costs associated with the service. Congress has made a conscious decision that funding transit programs are important to maintain and are a worthwhile use of federal funds.

As the Dixie area continues to grow, different funding programs will be available due to new population thresholds reached. The competition for limited funds will be shifting away from small, locally distributed grants to larger grants distributed to some sort of transit district or agency, yet to be determined. There will also be opportunities for direct allocations based on population and other factors.

Federal Funding Sources:

Grant Cycles

The UDOT Transit Team administers FTA grants for transit planning and service in Utah (outside of transit authorities or districts in Salt Lake/Ogden, Logan, and Park City). Generally, the grant cycles for UDOT grants begin in February, when service providers are requested to apply for an April deadline. In May or June, the grants are acted on by UDOT staff and appropriate committees and are included in the STIP in July. The grant is actually issued in October, the beginning of the federal fiscal year.

- Section 5303: This program provides for Transit Planning within each Metropolitan Planning Organizations. The large MPOs, such as the Wasatch Front Regional Council, share by percent of urbanized population approximately $260,000 annually

from this program. UDOT recently established a $10,000 annual floor for small MPOs such as Logan. The grant cycles for the 5313 and 5303 funds vary slightly from other programs in that a later deadline for applications (June) can be established to still meet the July STIP and October funding deadlines.

- Section 5307: This is a block grant program to local transit agencies in urbanized areas for capital and operating assistance, and can be used for planning activities. The matching ratio for operating assistance is 50 percent while the matching ratio for capital (and planning) assistance is 80 percent. Funding is distributed annually by formula based on population, population density, and bus revenue miles. The Logan Transit District, for example, is receiving $300,000 for fiscal year 1999, and the Utah Transit Authority (UTA) will receive close to $15,000,000 for assistance for UTA service in the Wasatch Front urbanized area. 5307 funds would not be available until after the St. George area was designated as a small urban area (MPO), likely in the year 2002 or 2003.

- Section 5309: This is a discretionary program for capital funding assistance. It is available to any size transit system, providing up to 80 percent of costs. Historically these funds are used for large capital items such as light rail systems or other large bus transit facilities. Competition for these funds is at a national level, so they can be difficult to secure. This funding source should be pursued to pay for a maintenance facility.

- Section 5310 (formerly 16(b)(2)): This program provides funding assistance to private non-profit transportation providers for capital improvements for service to senior citizens and persons with disabilities. There is approximately $350,000 annually available statewide (plus UDOT administrative costs) on a competitive basis. The competition for these funds is competitive. All funds are currently programmed in the STIP to the year 2001, although a 10 percent increase (approximately $35,000) may be available with the passage of TEA-21. (TEA-21 is the most recent federal transportation legislation, which will set the course for federal funding for the next Funding is provided on an 80 percent federal share and can be programmed directly to transit providers.)

- Section 5311 (formerly Section 18): This program has approximately $600,000 annually for rural transit capital and operating assistance (plus approximately 15 percent for UDOT administration). The match for this program is 80/20 (federal/local) although Utah has typically required a 50/50 match for operating assistance. All available funds are currently programmed in the STIP through the year 2001. TEA-21 may provide up to a 28 percent increase in funding, which would provide an additional $165,000 annually. When the area is designated an MPO after the 2000 Census, the areas within the urbanized area would no longer be eligible for section 5311 funds.

- Section 5313: Section 5313 provides for Statewide Transit Planning. There is approximately $70,000 available annually. These funds assist with UDOT salaries

and has, in the past, supported the development of Transit Development Plans (TDPs) for each Association of Governments throughout the state.

All of the specific projects from these transit programs are listed in the State Transportation Improvement Program (STIP). This document, published by the Utah Department of Transportation (UDOT) on a yearly basis, is a tool to program and track all federal and state highway and transit funding programs and projects over a five year period.

Local Funding Sources:*

- Voluntary Assessments: This source would require each participating jurisdiction (and participating businesses) to contribute to the transit system. With an area like St. George, where service will be multi-jurisdictional, this could be a politically attractive option.

- Direct Local Government: This is a direct allocation from a local government's operating budget.

- County Sales Tax: This is a common means for funding transit services. Utah statute allows a sales tax of ¼ cent to fund public transportation (Public Law 59-12-501). The law does allow for the tax to be applied in a transit district that splits a county.

- Property Tax: The County Commission has the option to dedicate property taxes to transit service.

- Real Estate Transfer Tax: A tax could be levied on each real estate transaction within the county. The tax could be dedicated for financing transit services.

- Lodging Tax: In resort areas such as St. George, a lodging tax has been used to support transit service. It is essentially a specific sales tax. This tax is used in Park City for their service.

- Transportation Impact Fees: This source taxes new development to help offset costs associated with it. While this source of funding is used throughout the state for roadway infrastructure improvements, it has not been used for transit service.

- Transportation Districts: This option establishes another governmental taxing agency for the purpose of owning and operating a transit system. It is a form of a special district except that it is dedicated to the transit system. UTA is an example of this sort of district (see below).

- Farebox: Fares are nearly always a source of funding for transit. It also has the attractiveness of making the service more politically acceptable since users are helping to pay for costs.

- Other Grants: There are a variety of grants an organization may pursue. For example, the Five County AOG was recently awarded a Department of Health and Human Services Welfare-to-Work grant which will help provide adequate transportation for persons needing to get to their jobs.

**Source: Utah Six County Rural Transit Feasibility Study, Technical Memorandum #2*

C. DISTRICTS VS. MUNICIPAL DEPARTMENTS

Urban Public Transit Districts are specifically enabled in the Utah Code (Utah Public Transit District Act, 17A-2) and would provide for multi-city transit service that would include a transit Board. They are a type of special service district. Although called an "Authority", the Utah Transit Authority (UTA) is an example of a urban transit district under the Utah Code. A transit district becomes another governmental entity.

An area-wide election must be included in the district and can be held at any time. A city or county may withdraw by special election.

The formation of a *Transit District* would require two separate public referenda. The first referendum would establish the District, while the second referendum would establish a continued funding source (typically sales tax revenue) to ensure long term operation of the authority and its assets. These can and probably should be voted on concurrently.

By comparison, transit service can be provided directly by a **municipality**, as is the case in Logan and Park City. The municipal code (10-8-86) specifically allows for a city to fund and provide transit service. The transit service is simply a part of the general services the city provides. In Park City the transit department is part of the public works department.

The legislation which enables both a district and municipality to tax for public transit (59-12-501) allows for a ¼ of 1% sales and use tax to fund public transportation.

In Logan, there will be regional transit service, but it will be created by the district contracting with Logan City to provide service via an interlocal agreement.

The Dixie area can take several routes for managing transit service as outlined above.

1. Each city can operate a system.
2. Each city can operate a system, but in actuality it is managed by one lead city by interlocal agreement.
3. A Transit District can be established.

Considering that transit service in the Dixie area will be multi-jurisdictional, it is recommended that a Public Transit District be established. This will require a voter referendum, and will create another governmental entity. But the benefits of equitable

board representation, ease of service expansion, and a single point of contact for the system administration and grants, all suggest that the formation of a district should be pursued. Based on the Timeline (figure 13) and service recommendations, the district formation can be delayed until late in 2001. If it passes, the district formation will coincide with the ability to secure new sources of federal funding as a result of the Urbanized Area designation.

The specific legislation enabling Utah Public Transit Districts to exist and tax, and enabling cities to provide transit service is included in the appendix.

D. ESTIMATED COSTS

There are two types of costs associated with a transit district: operating and capital. (Maintenance falls under the operating costs). As outlined above, each can utilize different programs, with different local matching schemes.

Operating: As shown in Table 12, initially the recommended service goal will require $475,000 in operating costs each year as paratransit service is continued, and Checkpoint and Inter-City service begins. The checkpoint will transition to a fixed service route by 2003.

Projected Capital Costs: To implement the recommended service options outlined in Table 12, a minimum of six new passenger buses will be required. A fully equipped passenger vehicle which meets the American with Disabilities Act (ADA) standards cost approximately $150,000 each. This is a capital cost of $900,000 over five years. These fleet improvements can be done incrementally, as both demand warrants and funding allows.

In addition, a maintenance facility should be planned for to service the fleet and also provide for a central vehicle dispatch location. The estimated cost of an appropriate facility is approximately $3,000,000. This type of facility would provide for maintenance, administration, and dispatch. This cost is spread out over several years, beginning in 2002. These costs are shown in Table 13.

Table 13
Capital Costs by Year

Need	2000	2001	2002	2003	2004
Maint. Facility	0	0	1,000,000	1,000,000	1,000,000
Buses	0	150,000	300,000	300,000	150,000
Total Capital Costs	***$0***	***$150,000***	***$1,300,000***	***$1,300,000***	***$1,150,000***

Table 14 below summarizes the total costs of service, including operating costs from Table 12, and capital costs from Table 13.

E. ESTIMATED REVENUES

Existing Programs already nearly match the recommended system. According to the Provider Survey, paratransit receives approximately $165,000 per year from different sources. However, with the passage of TEA-21 providing additional funds, Section 5310 and Section 5311 grants should be applied for immediately.

Sales taxes can be a significant source of revenue. Cities and counties in Utah have the authority to levy a Public Transit Tax. They also have the authority to levy a Municipal Highways Tax. Both must pass voter referenda. However, both taxes cannot be levied concurrently.

Six cities in the study area (Hurricane, Ivins, La Verkin, Santa Clara, St. George, and Washington City) passed the Municipal Highways Tax at ¼ of 1% in November, 1998. As a result, they cannot also enact the Public Transit Tax. However, the need still exists for a local contribution to the proposed transit system. The local funding may be needed for some of the operating costs and to match federal funds if farebox revenue is below expectations.

Approximately $500,000 in local funding (in addition to farebox revenue) is necessary to meet the needs of local match and capital assistance in the proposed transit program. This can be a one time expenditure or spread out over two years. The recommended source for this tax is from the local sales tax. The current tax rate is 6.25%. One percent is returned by the State Tax Commission to the local governments. In 1998, that one percent in Washington County equaled approximately $9,500,000. $250,000 each year for two years should be allocated from that source or from the general fund of the participating cities to help the transit system. This should occur during the same years as the potential 5309 Grant to help with the local match, 2002 or 2003. *Table 14* below shows the funding scenario.

Other local taxing initiatives should be explored by city or county staff counsel. For example, it may be possible to use a portion of the Municipal Highways Tax for transit, or implement the Resort Tax, although there is a formula of "transient beds" to "permanent beds" which may preclude this.

Farebox revenue is also significant. There will be, on average, 430,000 paying riders (excluding paratransit) at $.50 per ride per year through 2004. The first year's farebox revenue is not a realistic assumption. This will generate up to $215,000 in revenue per year. This is assumed to remain constant but will likely increase as service options are also increased.

Grants and **discretionary programs** must be pursued aggressively for the system to meet expected costs. As discussed above, additional funds from Sections 5310 and 5311 should be applied for to help with paratransit and rural transit needs *prior* to the area becoming eligible for larger urban funds.

As the area becomes eligible for urban grants, a strong push should be made for Section 5309 discretionary funds. While the table shows a large grant, given that the St. George area is a new MPO in addition to a new transit district, the chances for this grant are better than most other areas.

In order to secure the larger urban funds, an aggressive program should be developed to meet all the requirements of an MPO so that funds can be applied for and obligated as soon as possible. This means that an MPO organizational structure should be planned for, and MPO products such as a draft Long Range Regional Transportation Plan should be developed *before* it is technically necessary.

Matching the federal programs should be strategic to leverage as much as possible from them. Local sales taxes and farebox revenues are common ways to meet the federal matches.

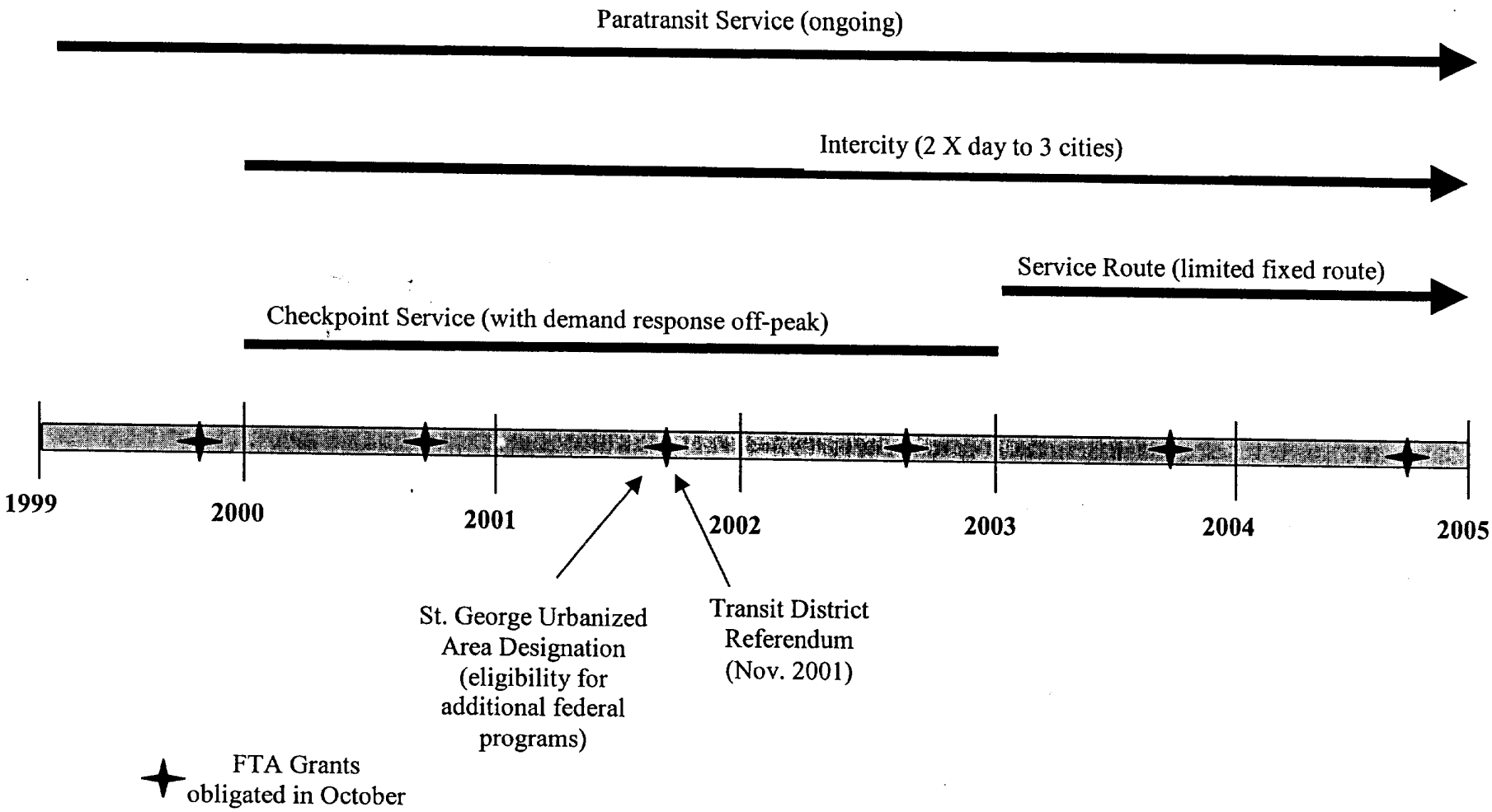
As discussed previously, the federal funding programs have different matches ranging from 20 to 80 percent. Matching requirements for capital are generally 20% local funds and 50% local funds for operating. With the scenario presented below, there will be approximately $1,350,000 needed in local match over the five year period for all the programs combined. Farebox and the local taxes combined will provide $1,360,000 in local funds, thus meeting the matching requirements.

Table 14
Potential Capital and Operating Revenue Goals, by Year

Source	2000	2001	2002	2003	2004
Local Taxes			250,000	250,000	
Sec. 5307			300,000	400,000	500,000
Sec. 5309			250,000	250,000	
Sec. 5310	165,000	175,000	175,000	175,000	175,000
Sec. 5311	150,000	150,000			
Farebox		215,000	215,000	215,000	215,000
Total Revenue	**$315,000**	**540,000**	**2,440,000**	**2,540,000**	**890,000**
Total Cap. & Op. Costs	***$475,000***	***$625,000***	***$1,870,000***	***$1,870,000***	***$1,815,000***

Total Five Year Aggressive Revenue Scenario: $6,725,000
Total Five Year Capital and Operating Costs: $6,655,000
Five Year Balance: $70,000

Dixie Transit Service Timeline



Fehr & Peers Associates, Inc. Transportation Consultants	Dixie Transit Feasibility Study Service Timeline	Figure 13

APPENDIX

Dixie Area Transit Feasibility Study
Summary of TAC Project Goals -- August 26, 1998

The following were stated by members of the Technical Steering Committee (TAC) as goals for the Dixie Area Transit Feasibility Study. These goals are listed in order that they were provided with no emphasis of priority or importance.

- Feasibility must be determined based on costs (financial and other) and benefits.
- Transit funding needs to be researched and identified in the study.
- Transit needs should include tourism and travel throughout an extended area (Mesquite, Zion, etc.).
- Employee commute needs should be identified.
- Disability transit riders need to be identified and quantified.
- The need for and opportunity for Dial-a-Ride (on-demand transit) should be investigated.
- Bedroom community transit should include employee needs, shopping trips to the central city Mall, and youth recreational opportunities.
- Senior citizen transit needs should be considered as access to schools, meals, medical services, shopping and other needs.
- Senior citizen winter increase ("Snow birds") should be considered.
- Economic benefits of improved access to senior citizen employment and volunteer services should be included.
- The safety benefits of providing alternatives to senior citizen drivers should be included in the study.
- Existing transit services for the elderly , disabled, and other needs should be coordinated.
- Policy implications on social service provider funding limits, for example, should be examined.
- Welfare to work and low income employment access should be included.
- A partnership with the corporate community for car pools and work shifts should be developed.
- College student and elderly volunteer needs should be included.
- Mental retardation needs should be included.
- Outreach to mental retardation demands may be difficult.
- Pedestrian access, needs, and policies should be incorporated in the study.
- City councils, particularly St. George City Council, should be involved.
- Future limitations to policy should be considered (i.e. geographic expansion of single city transit service).
- Future transit goals should be set.
- Time lines for funding cycles, voter initiatives, etc. need to be established.
- Opportunities and limitations of becoming a Small Urban Area (50,000 population) should be identified.
- Transit enabling legislation should be reviewed.
- Ongoing tax payer subsidy needs should be identified.

Dixie Area Transit Study
User Survey

The Five County Association of Governments, the Utah Department of Transportation, and the Fehr & Peers Associates consultant team is conducting a Transit Feasibility Study for the Five County Region. Please answer the following questions to help us understand the needs of the community and the major issues surrounding transit in the region. Forms should be submitted to: Fehr & Peers Associates, Inc., 64 E. 6400 South, Suite 330, Murray, UT 84107, FAX: (801) 261-0763.

I. RESIDENCE

Where do you live?

If this is not a city or town what is the closest community?

II. EMPLOYMENT

What is your employment status (please circle)?
❑*Full time* ❑*Part time* ❑*Work at home* ❑*Unemployed* ❑*Retired* ❑*Student* ❑*Other (explain)*

How do you normally get to work (please circle)?
❑*Walk* ❑*Bicycle* ❑*Drive Alone* ❑*Carpool* ❑*Other (explain)* _____

Where do you work?

III. PUBLIC TRANSPORTATION

Do you have a vehicle for your personal use?
❑*Yes* ❑*No*

Do you or someone in your household have any special transportation needs?
❑*No* ❑*Yes (explain)*

How many times in the past year have you needed public transportation?

What types of public transportation should be provided in the region?

What geographic areas should public transportation serve?

Who would benefit most from public transportation?

Who should provide public transportation service?

Would you be willing to pay a fare to use public transportation?

Would you be willing to increase taxes to support public transportation?

Please add any additional comments below.

Dixie Transit Feasibility Study
Transit Provider Survey

The Five County Association of Governments, the Utah Department of Transportation, and the Fehr & Peers Associates consultant team is conducting a Transit Feasibility Study for the Five County Region. Please answer the following questions to help us understand the existing resources in the region. Forms should be submitted before October 24th to: Fehr & Peers Associates, Inc., 64 E. 6400 South, Suite 330, Murray, UT 84107, FAX: (801) 261-0763. For questions call (801) 261-4700.

A. Agency Information

1. Agency Name_____ Your Name_____
2. Agency Address _____
3. Phone_____
4. Fax_____

5. Primary Purpose of Agency_____

B. Transportation Services

1. What types of transportation services are operated?_____
_____

2. What locations do you serve?_____
_____

3. Do you operate on a fixed route and schedule or a demand-response basis?_____

4. One what days and during what hours do you provide transportation services?_____
_____

5. Do you charge a fare for your services? ❑Yes ❑No
6. If yes, what is the fare for each type of passenger?_____

7. What is the address of your central operating address?_____
_____

8. Are current client transportation needs being met? ❑Yes ❑No
9. If no, what additional services are needed?_____
_____

10. Why are these services not provided?_____
_____

11. Is a client roster maintained? ❑Yes ❑No
12. If so, how many clients do you serve?_____

13. How many drivers do you have?
❑Full Time ❑Part Time ❑Volunteer

14. How many vehicles do you have?
❑Buses ❑Vans ❑Cars ❑Trucks

15. How many vehicles are in service on an average weekday?
❑Buses ❑Vans ❑Cars ❑Trucks

16. Identify the total number of vehicles in service during each hour on your typical busiest day of the week.

❑6a.m ❑7a.m. ❑8a.m. ❑9a.m. ❑10a.m. ❑11a.m. ❑12p.m.
❑1p.m. ❑2p.m. ❑3p.m. ❑4p.m. ❑5p.m. ❑6p.m ❑7p.m.

C. Ridership Information

What types of passengers do you transport (Indicate percentage of total of each group)?

❑General Public ❑Disabled ❑Agency Clients
❑Elderly ❑Students (College) ❑Students (Children) ❑Other (please specify)

D. Service Characteristics

Please provide the following information based on the most recent year for which data is available:

Year_____

	Directly Operated	Contracted	Total
# of One-Way Passenger Trips			
# of Vehicle Miles			
# of Vehicle Hours			
Operating Costs			
# of Days Operated			

Vehicle miles are the total number of miles traveled by a transit vehicle.
Vehicle hours are defined as the total number of hours transit vehicles are in operation.

E. Sources of Income

What are your sources of income for transportation?

Operating Revenues

Fares/Donations	$
FTA Section 5310	$
FTA Section 5311	$
Title III (OAA)	$
Head Start	$
DES	$
ACTION	$
Voc. Rehab.	$
United Way	$
City	$
County	$
Tribal	$
Other (Explain)	$
Other (Explain)	$
TOTAL	$

F. Future Plans

Please indicate any future plans you may have for transit service below.

Dixie Area Transit Feasibility Study
Questionnaire

The Utah Department of Transportation and the Five County Association of Governments is conducting a feasibility study to determine the need and demand for transit in the Dixie area (Washington County). As elected officials and local leaders in the community your input is important. Please take a few minutes to respond to the following questions. Feel free to attach your comments on a separate sheet if you like. You may return your comments or direct questions to either of the addresses below.

Robin Cohn
Fehr & Peers Associates, Inc.
64 East 6400 South, Suite 330
Murray, UT 84107
Phone: (801) 261-4700
Fax: (801) 261-0763

Jerry Amundsen, P.E.
PBS & J
437 South Bluff St.
St. George, UT 84770
(435) 628-9090
(435) 628-9189

1. What important issues face your community and how does public transit relate in importance to these issues?

2. How would you characterize transportation problems in the area? Can you be specific?

3. How do the regions transportation problems affect economic vitality?

4. Do you see a need for public transit in the area? If so, can you identify the greatest need for transit?

5. Who would benefit from transit service?

6. What social, economic, or technical changes do you think will affect transportation patterns in your area over the next 10 years?

7. If transit service was found feasible and there was demand for it, how do you suggest it be paid for?

8. What should be the highest priority for public transit services?

9. Who do you think could best implement a transit system?

10. What would you suggest are appropriate goals for future transit service in the Dixie area?

Please add any additional comments.

TABLE S2 Recommended methodology for estimating annual non-program-related rural passenger transportation demand

$$D = R_e E\left(\frac{1}{1+k_e e^{-U_e}}\right) + R_m M\left(\frac{1}{1+k_m e^{-U_m}}\right) + R_p P\left(\frac{1}{1+k_p e^{-U_p}}\right)$$

where:

D = annual demand for Non-Program-Related passenger transportation. (One-Way Trips per year)

R_e = 1,200

R_m = 1,200

R_p = 1,200

E = number of persons age sixty or over.

M = number of mobility-limited persons age sixteen to sixty-four.

P = number of persons, age sixty-four or less, in families with incomes below the poverty level. The definition of the poverty level is that used for the 1990 U.S. Census.

$k_e = e^{6.38}$

$k_m = e^{6.41}$

$k_p = e^{6.63}$

$$U_e = 0.000510 \times \frac{\text{Annual Vehicle–Miles Available to Elderly Market}}{\text{Area of the County}}$$

$$U_m = 0.000400 \times \frac{\text{Annual Vehicle–Miles Available to Mobility-Limited Market}}{\text{Area of the County}}$$

$$U_p = 0.000490 \times \frac{\text{Annual Vehicle–Miles Available to Low–Income Market}}{\text{Area of the County}}$$

Demand-Estimating Model for Transit Route and System Planning in Small Urban Areas

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A simplified model for directly estimating transit route and system patronage for small urban areas is presented. A category approach is used to determine basic transit trip generation by automobile-ownership classification. The basic rate is then modified by a series of adjustment relations for trip length, walking distance, and service frequency to arrive at an estimate of patronage for the service alternative under study. The model can be manually applied and used to assess new service, extension of existing service, or improvements in the existing level of service.

A principal component of transit planning and development studies centers on procedures for estimating demand and patronage. These procedures are important because they are the main means of assessing (a) benefits of new service or modifications to existing service; (b) financial feasibility of new or modified service; (c) mobility impacts on population that result from service changes; (d) potential impacts on areas served by new or modified transit services, areas such as central business districts (CBDs) and public service complexes; and (e) potential impacts on other transportation modes or transportation-related social, environmental, and economic factors.

Patronage-estimating procedures are well developed for large urban areas, particularly for long-range, capital-intensive transit improvements. These techniques have proved relatively successful because of a combination of one or more of the following factors characteristic of transit improvements in larger urban areas: (a) major system changes; (b) large travel markets in which transit service can have significant impacts; and (c) dominance in systems or corridor studies of travel that is diverted to transit rather than captive travel or latent transit demand. In addition, large urban areas generally have available a wealth of travel data for both highway and transit travel, data that represent a fairly wide range of conditions and permit the development of reasonably stable and statistically accurate forecasting relations.

Smaller urban areas present somewhat different problems in transit planning, both in the scale of proposed transit development and in the data base from which to derive forecasting relations. Transit improvements in smaller areas are less dramatic than those in larger areas, both in level-of-service changes and in overall impact on the total transportation system. Adding a new local bus route in a corridor or increasing service frequency on a local bus route—each an example of typical small-area transit improvements—is far less dramatic than building a rapid transit line in a corridor. In small urban areas, the smaller-scale changes in transit service, the relatively small travel markets, the lower potential for diversion of travel to transit, and the comparative dominance of the captive-rider and latent-demand market generally cause changes in the level of demand that cannot be satisfactorily addressed by competitive mode-forecasting techniques.

Techniques for direct estimation of transit patronage are more appropriate for smaller urban areas and also for comparatively minor service changes, for the following reasons:

1. Transit service improvements in small urban areas and minor changes in large urban areas generally have a greater impact on the generation of new travel than on diverting travel; new demand is mainly generated travel and only a minor amount is diverted travel.
2. The amount of new patronage, although significant in transit planning (mainly because of low existing patronage), does not have a significant effect on highway traffic volumes in relation to highway planning decisions.
3. Mode-share models are generally unsatisfactory for estimating the relatively small changes in patronage that occur as a result of the level-of-service changes most common in small-area and short-term transit improvements.

There is a need for a technique of estimating demand and patronage that is appropriate to the characteristics and commensurate with the requirements of small areas and comparatively minor transit service improvements. As with more traditional mode-share techniques, this technique must be sensitive to the policy-related factors inherent in transit planning: frequency, coverage, fares, and travel time. In addition, the comparative size of existing travel markets, characteristics of potential trip makers, and latent demand generation potential should be accounted for. Other considerations are the desire to simplify application of the technique to increase its utility as a planning tool by reducing the data requirements, the application effort, and reliance on senior professional staff.

A desirable technique is one that

1. Is responsive to all major policy issues;
2. Is sensitive to trip-maker and level-of-service characteristics;
3. Is intuitively simple;
4. Has minimal data requirements (can be used with census data and planning descriptions of transit service);
5. Can be applied efficiently as a manual technique for route or small-system planning but, if need be, can be computerized to simplify bookkeeping for repetitive or larger-system applications; and
6. Is intuitively correct (e.g., patronage changes are intuitively consistent with the direction of change in a particular service characteristic).

PAST EXPERIENCE

A number of approaches to the estimation of demand and patronage have been developed for small-area transit planning. These have generally been of two types: estimation of areawide system patronage and route-corridor estimation. Techniques for both have ranged from simple (standard productivity rates with specified route mileage and hours) to complex (be-

havioral system models developed by the New York State Department of Transportation (1-3)]. A number of the more widely used approaches or variations are briefly described here.

One simplified aggregate systemwide approach is based on use of an annual per-capita transit ridership that corresponds to a typical average, overall transit operation for a small urban area. The per-capita trip rate is modified for variations in systemwide frequency and fare from the per-capita-trip-rate reference condition. Data are empirically derived from a number of smaller urban areas. Route planning cannot be done by using this technique.

The approach developed by Hillegass (4) is a simplified technique based on major corridor or route structure for travel to the CBD. The premise of the approach is that in smaller urban areas the predominant type of transit trips is trips to the CBD, which are largely work trips. A generalized relation between mode split and automobile-occupancy and income and automobile ownership, developed from national statistics, is used to estimate systemwide (and corridor) travel to the CBD for a given estimate of CBD person work travel for the urban area. The procedure explicitly addresses the area of transit route coverage and user characteristics but does not contain specific relations to reflect frequency and fare variations.

Procedures developed in Massachusetts—in the Merrimac Valley (5) and Northern Middlesex (6) transit development programs (TDPs)—are both variations and extensions of the approach advanced by Hillegass. The Merrimac Valley approach is a corridor technique that implies a radial CBD-dominant transit system. Basic transit trip rates within a 0.8-km (0.5-mile) coverage band for separate automobile-ownership categories are used to estimate a base route demand. Relations for service frequency and fare changes developed in other studies are used to modify the base route demand. The Northern Middlesex technique is similar but uses a trip rate based on income. Adjustments for frequency and fare variations are again based on relations developed in national studies.

All of the above techniques stress simplification in application and a complexity in balance with the demand-forecasting problem. The four approaches have similar inherent assumptions that are not always explicitly presented. All are based on a radial route structure that focuses on the CBD. Transit travel is predominantly home-based travel to the CBD: there is little cross-town or non-CBD corridor travel. Routes are fairly short in length and generally do not extend beyond the older, denser residential core; few routes extend to newer, low-density residential areas. Consequently, these techniques are intended to be used primarily for direct travel to a single dominant activity center over fairly short [6.4-km (4-mile)] maximum travel distances.

Each of the approaches is intuitively acceptable, and each contributes to the state of the art. Collectively, they form a good basis for further extension of a simplified forecasting technique.

CONCEPTUAL ASPECTS OF MODEL DEVELOPMENT

A number of conceptual hypotheses are presented that establish the structure for model development. These are based partly on previous work, on general findings from analysis of transit data, and from intuitively derived relations based on observation of transit and travel data.

The nature of transit trip making in smaller urban areas and, to a degree, new trip making associated with transportation system management (TSM) type of improvements to bus service in any area argues strongly for a demand-estimating technique that emphasizes generation of trips rather than mode splitting of existing demand. This establishes the approach for model development.

Specification Guidelines

The objective of the process of model development is to produce a set of relations that can be applied at the planning level to determine potential ridership levels for variations in service as well as service to activity centers of different sizes. Conceptually, the variations that should be addressed are route relocation, route extension, frequency changes, route speed changes, changes in fare levels, route coverage, trip-maker characteristics, and activity location and size. It is desirable to structure these relations so that they can quickly and easily be used to evaluate transit service improvements. Graphic and tabular representations, rather than mathematical equations, are desirable. Model development is directed toward this format.

The model is in the form of direct transit trip generation and is structured as a set of separate but integrated relations. The components are

1. A basic transit trip generation rate by socioeconomic category and
2. Relations for modifying trip generation by (a) variation in walking distance to service, (b) distance from the attraction center, (c) change in service frequency, (d) change in fare levels, (e) change in schedule running speed, (f) size of activity center, and (g) size of urban area.

Model development does have some basic constraints. These are primarily dictated by available empirical data. The source of empirical data on ridership is on-board travel surveys for conventional fixed-route, radially oriented surface bus systems. The basic data limitations are that (a) the model is for conventional transit service and should not be extended to paratransit services and (b) the model is for trips to an activity center at the focus of radially oriented transit service. The second limitation reflects the CBD data bias. However, introduction of concepts of trip-rate adjustment, based on both the absolute and the relative size of an activity center, and use of the principle of superposition allow CBD-based data to be extended and used for transit planning in areas that contain multiple activity centers.

Basic Trip Generation Rates

Transit trip generation rates have been shown to be related to such socioeconomic characteristics of trip makers as income and automobile ownership. Both variables have been shown to be highly correlated. Since information on automobile ownership taken from survey data is more reliable than data on income, it is selected as the basic variable. In addition, automobile-ownership distributions are readily available from census data, there are fewer variable stratifications, and impacts of energy crises will be more readily reflected in automobile ownership than in income.

The basic trip rate should be for each category of automobile ownership: households with no automobile, households with one automobile, and households with two or more automobiles. Trip generation is based on trips per household (since this is a short-term forecasting technique, the apparent trend toward lower

household size can be ignored). To ensure that trip generation reflects "effective" transit service, only data from covered areas are used in developing trip rates. Each trip-rate value will inherently reflect "averages" of the other parametric values, such as trip length and distance from a route. A basic trip-rate table is shown in Figure 1.

Trip Length

Transit trip generation rates should vary with distance from the CBD. This reflects two phenomena: trip distribution and mode share. Both concepts are described below.

A hypothetical radial travel corridor to the CBD is used to show the effect of trip distribution. The corridor consists of four zones of equal length and width; all zones have identical socioeconomic and trip generation characteristics. The width of the corridor is taken as being equal to the coverage of a transit route—approximately 0.8 km (0.5 mile)—as shown in Figure 2.

The generalized distribution of trip length and frequency for each zone can be estimated by using trip distribution theory and empirically based observation. In Figure 3, zone 1 sends a trips to the CBD, zone 2 sends b trips, zone 3 sends c trips, and zone 4 sends d trips, where a > b > c > d. If trips to the CBD from the corridor were plotted by distance from the CBD, a trip-length distribution of CBD-oriented trips would result. For example, Figure 4 shows that travel from a zone to the CBD decreases as the distance from that zone to the CBD increases.

The implications of the relations shown in Figures 3 and 4 for procedures for forecasting the transit trip rate are significant. For example, if the transit trip rate were taken as a constant value, it would imply either increasing mode share or greater latent demand generation or both. This is contrary to empirical evidence.

Generalized mode-share relations along the corridor can be hypothesized from mode-share theory and empirical evidence. A generalized mode-share profile is shown in Figure 5. Transit is not an attractive mode for short trips, primarily because of the relatively high waiting times; walking and the automobile are more attractive, and hence mode split or transit trip generation would be lower for short trips. At the other extreme—long trips—transit begins to lose its attractiveness as line-haul time and cost begin to favor the automobile; the mode share for transit then decreases.

A conceptual relation of variation in transit trip generation rates along a transit service corridor can be derived from the above characteristics. This relation should also show differences for different strata of automobile ownership. Total person-trip-length distribution by distance will vary by category of automobile ownership because of the comparative difficulty in reaching the same spatial opportunities in the same travel time for each category. Two-automobile households have a superior mode available for trip making and can "cover more ground" in the same time as zero-automobile households, which are more dependent on "inferior" modes such as transit, taxi, and shared ride. Generalized profiles of trip-length distribution by category of automobile ownership in a trip production zone are shown in Figure 6. The relation between variation in transit trip generation along a corridor and distance from the CBD is shown in Figure 7.

All of these concepts can be applied to any trip attraction subarea, such as shopping centers and public service complexes.

Trip Frequency

Empirical observation, elasticity studies of transit system characteristics, and research based on behavioral mode-share models have all shown mode split to be sensitive to frequency of service. The relation between transit trip rate and headway, based on disutility mode-split findings, is shown in Figure 8. Separate response surfaces are indicated for each category of automobile ownership.

Fare

Transit trip generation (mode share) has been shown to vary with the fare charged. The relation between transit trip generation rate and fare, derived from existing mode-share and elasticity research, is shown in Figure 9.

Figure 1. Basic trip rate.

0 Auto	1 Auto	2+Auto
a,a	b,b	c,c

Figure 2. Prototypical CBD travel corridor.

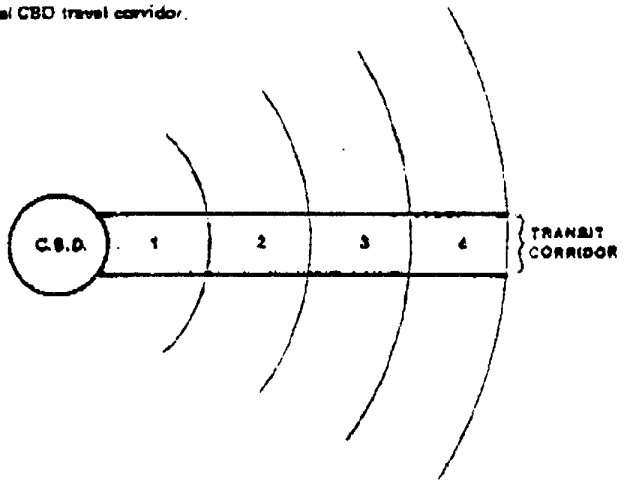


Figure 3. Generalized distribution of trips for an origin zone.

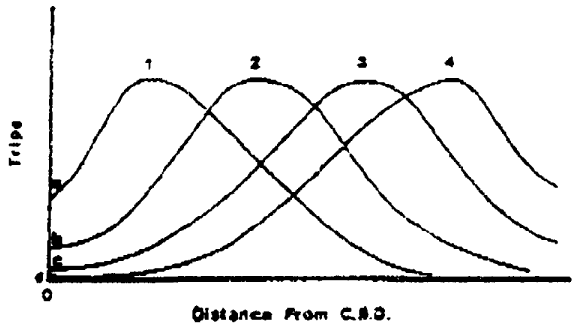


Figure 4. Trips to the CBD by distance of origin from the CBD.

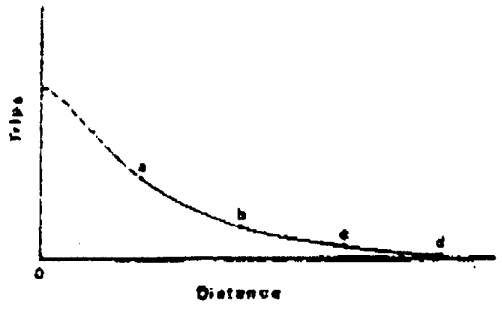


Figure 5. Generalized distribution of trip origins for trips to the CBD.

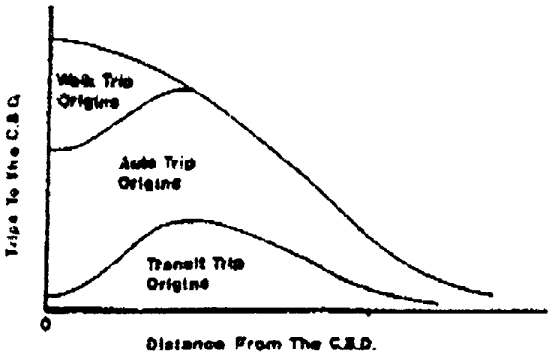


Figure 6. Generalized distribution of trips from a zone by automobile ownership.

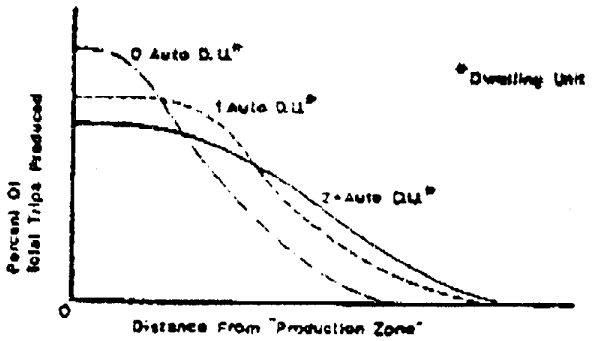


Figure 7. Relative transit trip generation rates for travel to the CBD by distance from the CBD.

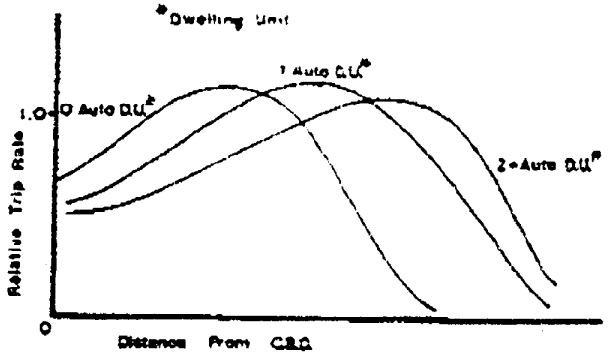
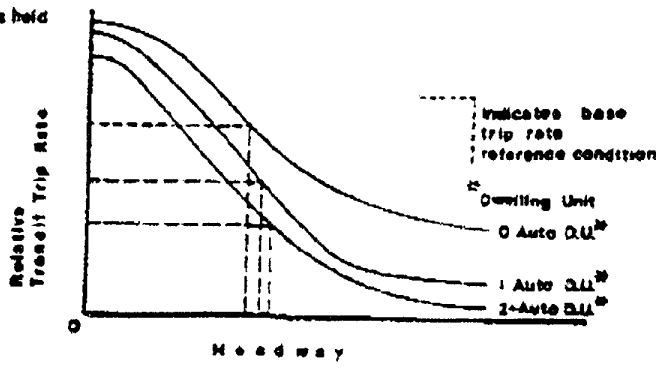


Figure 8. Transit trip rate versus headway (all other factors held constant).



Walking Distance

Analysis of empirical data has shown that the walking distance between a potential trip origin and a transit stop has an effect on the rate of transit ridership. A generalized form of the relation between walking distance and transit trip rate is shown in Figure 10.

Trip Line-Haul Speed

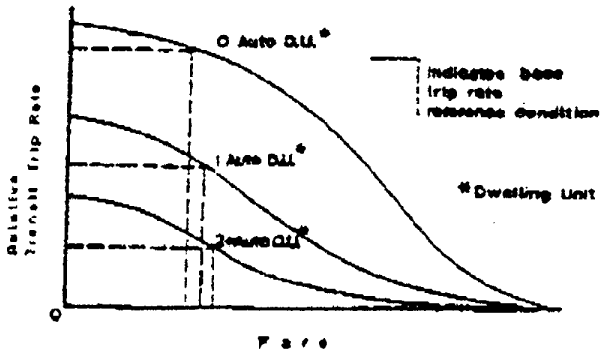
Mode-split model analysis has shown transit demand to vary with changes in line-haul transit service time, all other factors remaining constant. Generally, as travel time by transit improves, the trip rate increases. A

hypothesized relation between speed and trip rate for a constant person-trip length is shown in Figure 11.

Size of Urban Area

Data on transit trip rates from several urban areas of different size but with approximately the same quality of transit service indicate variation in trip rates. An a priori hypothesis is that city size may be a factor in transit trip generation rates. This may be a result of a number of factors that become more pronounced as city size increases, such as increases in traffic congestion and parking cost and decreases in parking space and in walking as a primary mode of travel. Although many of these factors may be directly or indirectly accounted for in other hypotheses, a general conceptual relation between transit trip rate and size of the urban area is shown in Figure 12.

Figure 9. Fare versus transit trip rate (all other factors held constant).



Size of Attraction Subarea

The size of the attraction subarea measured in the number of trip attractions and in the proportion of total urban-area trip attractions should have an impact on transit trip generation rates. These measures reflect trip distribution, the size of the trip market, and traffic congestion as well as the cost and difficulty of parking in the subarea. It is hypothesized that, as both the percentage of area attractions and the absolute number of attractions in a subarea increase, the transit trip rate should increase, transit service parameters remaining constant. Figure 13 shows the relation between transit trip rate and urban-area attraction activity.

This hypothesis has added significance. The specification for the proposed model is for the estimation of transit trips to a single attraction subarea (the CBD). With the exception of the trip-length adjustment, the estimate of transit trip generation is independent of transit travel to any other location. It is therefore possible, and conceptually valid, to develop a number of separate estimates that correspond to transit service to other specific attraction subareas and combine them in an additive manner to yield route and system estimates for areawide travel by transit. An adjustment factor to scale the basic trip rate according to relative subarea activity would permit this.

Principle of Superposition

Superposition occurs when events taking place in the same environment are independent of one another in their effect on the environment. Impacts of each event are additive, having a linear cumulative effect. The model specification is defined to take advantage of superposition to simplify use of the model. The discussion above on estimating transit demand for more than one attraction area is an example of superposition.

Figure 10. Relative transit trip rate versus walking distance from transit route.

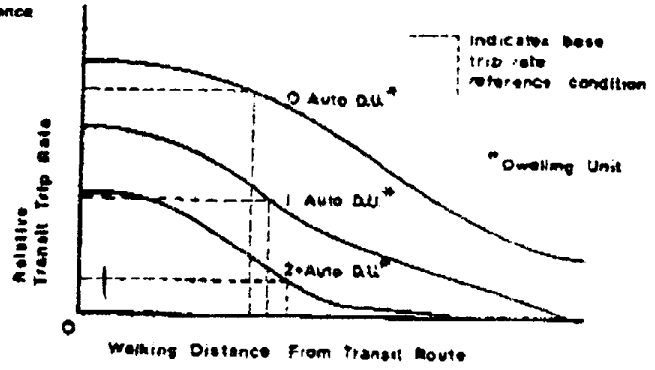


Figure 11. Route line-haul speed for a person trip of constant distance versus relative transit trip rate.

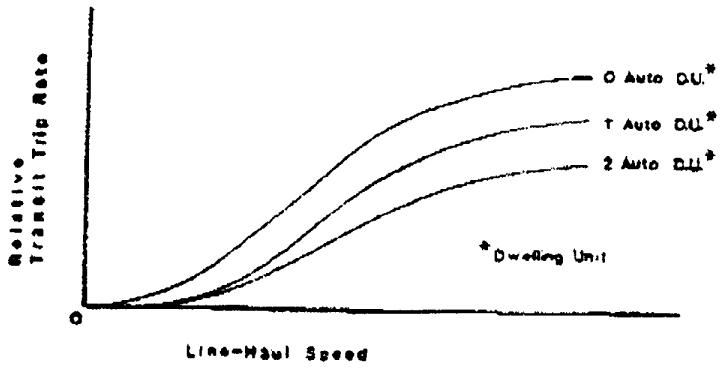


Figure 12. Relative transit trip rate versus size of urban area.

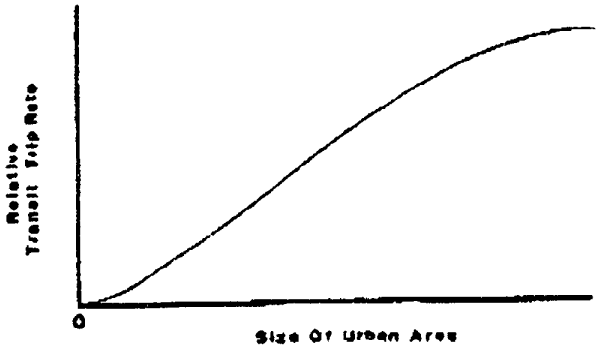


Figure 13. Relative transit trip rate versus urban-area attraction activity.

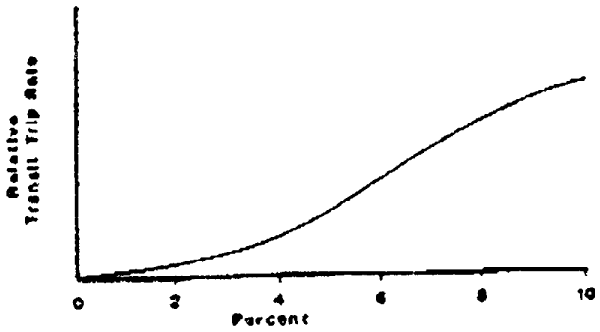
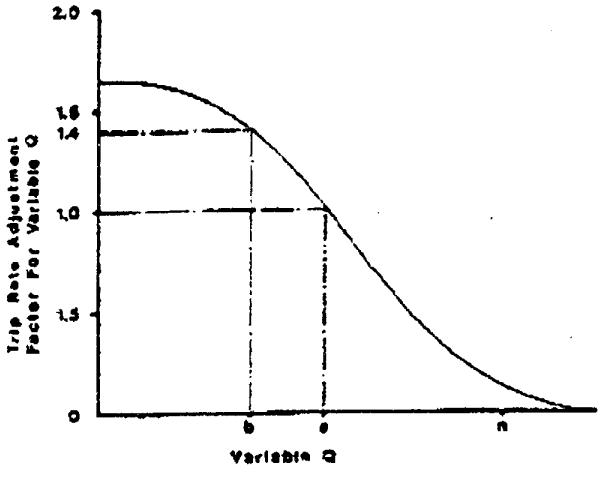


Figure 14. Trip-rate adjustment factor versus variable Q.



Application Concept

The model is intended to be applied on a route or corridor basis. It can be applied on an aggregate system basis if average route characteristics and areawide socioeconomic characteristics and percentage coverage are used.

In using the model to estimate route demand, the basic trip generation rate for each category of automobile ownership is successively modified by an adjustment factor that reflects the route characteristics, the spatial relation of the trip origin zone to the attraction subarea, and the size of the urban area and the attraction subarea. This is expressed as follows:

$$T_k = \sum_{i=1}^{\bar{i}} \sum_{j=1}^{\bar{j}} T_{ijk}$$

$$= \sum_{i=1}^{\bar{i}} \sum_{j=1}^{\bar{j}} (H_{ij})(R_j)(F_j)(W_{ij})(Q_j)(D_{ij})(SP_{ij})(A_{ik})(U) \qquad (1)$$

where

- T_k = total trips generated on the route to attraction k,
- T_{ijk} = trips from zone i by trip-maker category j to attraction k,
- H_{ij} = number of households of type j in zone i,
- R_j = basic transit trip generation rate for trip-maker category j,
- F_j = fare adjustment factor for the route for trip-maker category j,
- W_{ij} = walk-distance adjustment factor for trip-maker category j in zone i,
- Q_j = frequency adjustment factor for trip-maker category j,
- D_{ij} = distance adjustment factor for trip-maker category j in zone i,
- SP_{ij} = route-speed adjustment factor for trip-maker category j in zone i,
- A_{ik} = adjustment factor for subarea size and concentration, and
- U = adjustment factor for urban-area size.

As can be seen from this expression, the application is very similar to Highway Capacity Manual procedures for calculating intersection capacity (7).

The basis of this approach is that each adjustment factor is referenced to the value each variable had for calculation of the basic trip rate. This is accomplished by normalizing each of the relations by dividing trip rates by the average basic trip rate. The value of the variable at a normalized trip rate of 1.0 is the reference condition. A generalized curve for the relation between the variable and the trip-rate adjustment factor is shown in Figure 14. (In the figure, a is the value of variable Q, corresponding to the base trip generation rate; thus, the adjustment factor for a is 1.0. If the proposed service improvement resulted in a value of b for variable Q, the base trip generation rate would be multiplied by an adjustment factor of 1.4.)

Use of the procedure implies measuring the transit system variables as the trip maker sees them. When a zone is served by only one route, there is no measurement problem; characteristics of only that route are used. However, when a zone is served by two or more routes for travel to the attraction subarea, the effective combined service characteristics must be used. This will almost always be limited to the frequency variable. As an example, a zone with two 30-min services is treated as having one 15-min service.

MODEL DEVELOPMENT

Data Base

The data base for model development consisted of an on-board transit O-D survey of approximately 1000 interviews, a description of the transit system, and socioeconomic census data from the Montachusett, Massachusetts, regional planning agency (RPA).

Figure 15. Walking-distance adjustment factor.

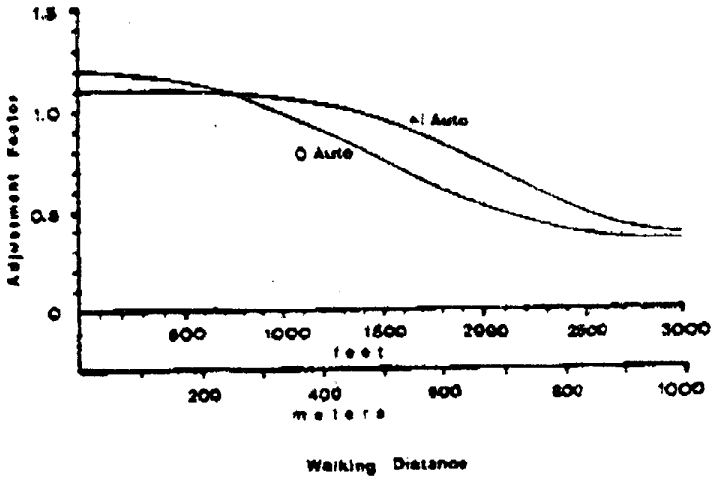


Figure 16. Trip-length adjustment factor.

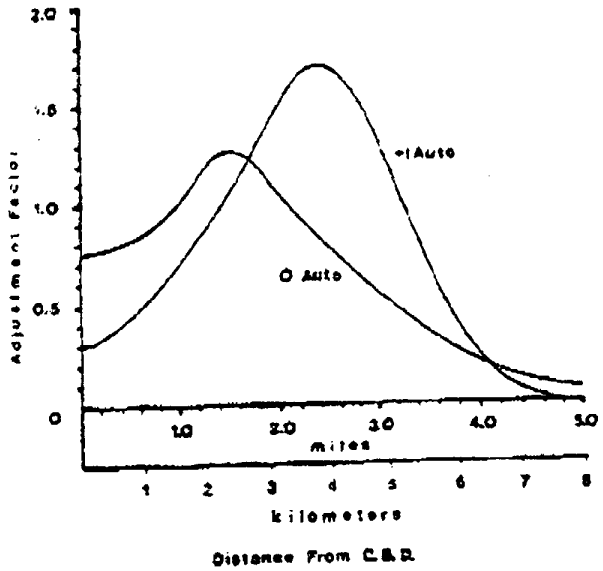
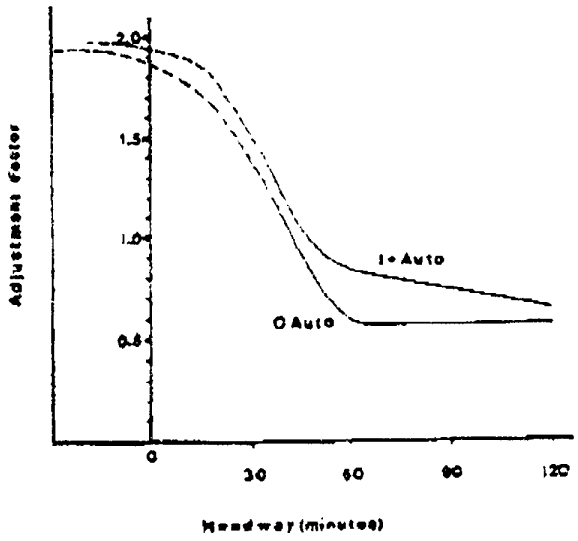


Figure 17. Trip-frequency adjustment factor.



Relations Investigated

Limitations imposed by the data restricted direct analysis to basic trip rate, trip length, walking distance, and service frequency. Fare-change relations were approached by using findings from other studies. Analysis of the effect of route speed was not possible because of a lack of suitable observations. An attempt was made to study subarea relations by using the Fitchburg and Leominster CBDs within the RPA, but this analysis was inconclusive because of problems encountered in structuring the analysis. Because of the single-area data set, the effect of city size could not be investigated.

Data Definition, Preparation, and Analysis

Trip generation was defined on standard gravity model notation, home-based and non-home-based. Only home-based trip productions were used in the model. Non-home-based trips were not included because of difficulty in associating causative factors and because these trips represented a small proportion of total transit trips. Trip attractions were not explicitly addressed; consideration of only the CBD as a trip attraction area and use of only trips to this subarea implied both distribution and balanced trip generation. This was also necessary to conform to the single-attraction focus of the model specification.

Home-based trips were not stratified by purpose, primarily because of the thin data base. Use of a single, combined home-based purpose appears sufficient for estimating transit patronage for CBD travel, but models by purpose should be more useful, particularly for estimating trips to more homogeneous subareas such as shopping centers, medical/health-care complexes, and large industrial parks.

Use of the home-based production definition produces a round-trip estimate that results in the estimate for a route in nondirectional total passengers. Directional loads and load profiles are estimated by splitting total trips equally into boardings and alightings and loading these on the route. Non-home-based trips are accounted

Table 1
Projected Operating Costs

Service	2000	2001	2002	2003	2004
Checkpoint	$190,000	$190,000	$190,000		
Service Route				190,000	190,000
Paratransit	190,000	190,000	285,000	285,000	380,000
Inter-city	95,000	95,000	95,000	95,000	95,000
Total	$475,000	$475,000	$570,000	$570,000	$665,000

Costs based on 12.5 hours per day at $30/hr.

Utah Legislative Codes

Municipal Code 10.8.86 – Organization, Operation, Maintenance and Funding of Public Transit

Public Transit Act 17A.2 – Transit Districts

Public Transit Code 59.12.501 – Municipality Taxing

All Legislative Codes/Acts will be provided in the Final Report for the Dixie Transit Feasibility Study.